

Commonwealth of Pennsylvania

DEPARTMENT OF AGRICULTURE

BULLETIN No. 246

Proceedings of the Thirty-Seventh Annual  
Meeting of the

Pennsylvania State Board  
of Agriculture



HELD IN THE

Caucus Room of the House of Representatives, Capitol,  
Harrisburg, Pa., January 28-30, 1914

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HARRISBURG, PA.:  
WM. STANLEY RAY, STATE PRINTER  
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MEMBERS  
OF THE  
**Pennsylvania State Board of Agriculture**  
FOR THE YEAR 1914

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MEMBERS EX-OFFICIO

HON. JOHN K. TENER, Governor.  
HON. HENRY HOUCK, Secretary of Internal Affairs.  
DR. N. C. SCHAEFFER, Superintendent of Public Instruction.  
DR. EDWIN ERLE SPARKS, President of the State College.  
HON. A. W. POWELL, Auditor General.  
HON. N. B. CRITCHFIELD, Secretary of Agriculture.

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APPOINTED BY THE GOVERNOR

Gen. James A. Beaver, Bellefonte, .....Term expires 1916  
Mrs. Jean Kane Foulke, West Chester, Chester County, .....Term expires 1917

---

APPOINTED BY THE PENNSYLVANIA STATE POULTRY SOCIETY

W. Theo. Wittman, .....Allentown,.....1917

---

APPOINTED BY THE PENNSYLVANIA BEE-KEEPERS' ASSOCIATION

E. A. Weimer, .....Lebanon, .....1915

---

ELECTED BY COUNTY AGRICULTURAL SOCIETIES

Term expires

|                  |                         |                                |      |
|------------------|-------------------------|--------------------------------|------|
| Adams, .....     | A. I. Weidner, .....    | Arendtsville, .....            | 1915 |
| Allegheny, ..... | A. J. Purdy, .....      | Imperial, R. F. D. No. 1, .... | 1915 |
| Armstrong, ..... | S. S. Blyholder, .....  | Kelly Station, .....           | 1917 |
| Beaver, .....    | Walter C. Dunlap, ..... | West Bridgewater, .....        | 1917 |
| Bedford, .....   | Wm. F. Biddle, .....    | Everett, .....                 | 1915 |
| Berks, .....     | H. G. McGowan, .....    | Geiger's Mills, .....          | 1916 |
| Blair, .....     | W. Frank Beck, .....    | Altoona, .....                 | 1917 |
| Bradford, .....  | F. D. Kerrick, .....    | Towanda, .....                 | 1916 |
| Bucks, .....     | B. Frank Wambold, ..    | Sellersville, .....            | 1917 |
| Butler, .....    | Wm. H. Milliron, ....   | Euclid. ....                   | 1917 |
| Cambria, .....   | L. J. Bearer, .....     | Hastings, .....                | 1916 |
| Cameron, .....   | R. P. Heilman, .....    | Emporium, .....                | 1916 |

|                       | Term expires                                     |
|-----------------------|--|
| Carbon, .....         | Edward Lienhard, ..... Mauch Chunk, ..... 1917   |
| Centre, .....         | John A. Woodward, ... Howard, ..... 1915         |
| Chester, .....        | M. E. Conard, ..... Westgrove, ..... 1915        |
| Clarion, .....        | J. H. Wilson, ..... Clarion, ..... 1916          |
| Clearfield, .....     | Harrison Straw, ..... Clearfield, ..... 1916     |
| Clinton, .....        | Joel A. Herr, ..... Millhall, ..... 1917         |
| Columbia, .....       | A. P. Young, ..... Millville, ..... 1916         |
| Crawford, .....       |  |
| Cumberland, .....     | Abram Bosler, ..... Carlisle, ..... 1916         |
| Dauphin, .....        | E. S. Keiper, ..... Middletown, ..... 1917       |
| Delaware, .....       | Thos. H. Wittkorn, ... Media, ..... 1917         |
| Elk, .....            | John M. Wittman, .... St. Mary's ..... 1916      |
| Erie, .....           | John J. Rouse, ..... Wattsburg, ..... 1916       |
| Fayette, .....        | John T. Smith, ..... Dunbar, ..... 1916          |
| Forest, .....         |  |
| Franklin, .....       | J. P. Young, ..... Marion, ..... 1917            |
| Fulton, .....         | Frank Rauck, ..... Hancock, Md., ..... 1916      |
| Greene, .....         | C. E. Lantz, ..... Carmichaels, ..... 1916       |
| Huntingdon, .....     | Geo. G. Hutchison, .. Warrior's Mark, ..... 1915 |
| Indiana, .....        | S. C. George, ..... West Lebanon, ..... 1916     |
| Jefferson, .....      | Peter B. Cowan, ..... Brookville, ..... 1916     |
| Juniata, .....        | Matthew Rodgers, .... Mexico, ..... 1915         |
| Lackawanna, .....     | Horace Seamans, ..... Factoryville, ..... 1916   |
| Lancaster, .....      | J. Aldus Herr, ..... Lancaster, ..... 1917       |
| Lawrence, .....       | Sylvester Shaffer, .... New Castle, ..... 1916   |
| Lebanon, .....        | H. C. Snavely, ..... Cleona, ..... 1916          |
| Lehigh, .....         | P. S. Fenstermaker, .. Allentown, ..... 1915     |
| Luzerne, .....        |  |
| Lycoming, .....       | A. J. Kahler, ..... Hughesville, ..... 1915      |
| McKean, .....         | E. A. Studholme, .... Smethport, ..... 1916      |
| Mercer, .....         | W. C. Black, ..... Mercer, ..... 1917            |
| Mifflin, .....        | M. M. Naginey, ..... Milroy, ..... 1916          |
| Monroe, .....         | F. S. Brong, ..... Saylorburg, ..... 1916        |
| Montgomery, .....     | John H. Schultz, .... Norristown, ..... 1917     |
| Montour, .....        | J. Miles Derr, ..... Milton, ..... 1916          |
| Northampton, .....    | C. S. Messinger, .... Tatamy, ..... 1915         |
| Northumberland, ..... | I. A. Eschbach, ..... Milton, R. D., ..... 1916  |
| Perry, .....          | Clark M. Bower, ..... Blain, ..... 1916          |
| Philadelphia, .....   | David Rust, ..... Philadelphia, ..... 1916       |
| Pike, .....           | B. F. Killam, ..... Paupack, ..... 1915          |
| Potter, .....         |  |
| Schuylkill, .....     | John Shoener, ..... New Ringgold, ..... 1916     |
| Snyder, .....         |  |
| Somerset, .....       | Robert W. Lohr, ..... Boswell, ..... 1917        |
| Sullivan, .....       | E. R. Warburton, .... Campbellsville, ..... 1915 |
| Susquehanna, .....    | Frank A. Davies,.... Montrose, ..... 1916        |
| Tioga, .....          | C. H. DeWitt, ..... Mansfield, ..... 1917        |
| Union, .....          | J. Newton Glover, .... Vicksburg, ..... 1917     |
| Venango, .....        |  |
| Warren, .....         | R. J. Weld, ..... Sugargrove, ..... 1917         |
| Washington, .....     | Jas. M. Paxton, ..... Houston, ..... 1917        |
| Wayne, .....          | W. E. Perham, ..... Varden, ..... 1917           |
| Westmoreland, .....   | W. F. Holtzer, ..... Greensburg, ..... 1916      |
| Wyoming, .....        | G. A. Benson, ..... Tunkhannock, ..... 1916      |
| York, .....           | Geo. F. Barnes, ..... Rossville, ..... 1917      |

## OFFICERS

### PRESIDENT

Hon. John K. Tener, ..... Harrisburg.

### VICE PRESIDENTS

Hon. J. H. Wilson, ..... Clarion.  
B. F. Killam, ..... Paupack.  
S. C. George, ..... West Lebanon.

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A. P. Young, ..... Millville.  
M. M. Naginey, ..... Milroy  
Hon. H. G. McGowan, ..... Geiger's Mills.  
S. S. Blyholder, ..... Kelly Station.  
Mrs. Jean K. Foulke, ..... West Chester.  
W. F. Holtzer, ..... Greensburg.  
John Shoener, ..... New Ringgold.  
J. Newton Glover, ..... Vicksburg.  
George F. Barnes, ..... Rossville.  
Hon. N. B. Critchfield, Secretary, ..... Harrisburg.  
R. J. Weld, Assistant Secretary, ..... Sugargrove.

### ADVISORY COMMITTEE, CONSULTING SPECIALISTS AND STANDING COMMITTEES AS REPORTED BY THE EXECUTIVE COMMITTEE

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Mrs. Jeap Kane Foulke, ..... West Chester.  
J. Newton Glover, ..... Vicksburg.

#### COMMITTEE ON RESOLUTIONS

John Shoener, ..... New Ringgold.  
G. A. Benson, ..... Tunkhannock.  
Joel A. Herr, ..... Millhall.  
F. S. Brong, ..... Saylorburg.  
B. Frank Wambold, ..... Sellersville.

#### COMMITTEE ON LEGISLATION.

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M. M. Nagiey, ..... Milroy.  
Hon. H. C. Snavely, ..... Cleona.  
Hon. H. G. McGowan, ..... Geiger's Mills.  
Hon. Robert W. Lohr, ..... Boswell.

#### CONSULTING SPECIALISTS

Botanist, ..... Prof. F. D. Kern, ..... State College.  
Pomologist, ..... Chester J. Tyson, ..... Floradale.  
Chemist, ..... Dr. William Frear, ..... State College.  
Vet. Surgeon, ..... Dr. C. J. Marshall, ..... Harrisburg.  
Sanitarian, ..... Dr. S. G. Dixon, ..... Harrisburg.  
Microscopist and Hygienist, ..... Prof. J. W. Kellogg, ..... Harrisburg.  
Entomologist, ..... Prof. H. A. Surface, ..... Harrisburg.  
Ornithologist, ..... Dr. Joseph Kalbfus, ..... Harrisburg.  
Meteorologist, ..... Prof. W. G. Owens, ..... Lewisburg.  
Mineralogist, ..... Dr. Isaac A. Harvey, ..... Lock Haven.  
Apiarist, ..... H. C. Klinger, ..... Liverpool.  
Economic Geologist, ..... Baird Halberstadt, ..... Pottstown.  
Agricultural Geologist, ..... W. H. Stout, ..... Pinegrov.  
Forests and Forestry, ..... Miss Mira L. Dock, ..... Fayetteville.  
Feeding Stuffs, ..... G. G. Hutchison, ..... Warrior's Mark.  
Soils and Crops, ..... Prof. Franklin Menges, ..... York.  
Insecticides, ..... J. D. Herr, ..... Lancaster.

## **STANDING COMMITTEES**

---

### **CEREALS AND CEREAL CROPS**

J. Newton Glover, ..... Vicksburg.

### **ROADS AND ROAD LAWS**

P. S. Fenstermaker, ..... Allentown.

### **FRUIT AND FRUIT CULTURE**

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### **DAIRY AND DAIRY PRODUCTS**

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### **FERTILIZERS**

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### **WOOL AND TEXTILE FIBERS**

James M. Paxton, ..... Houston.

### **LIVESTOCK**

W. C. Black, ..... Mercer.

### **POULTRY**

W. Theo. Wittman, ..... Allentown.

**Proceedings of the Thirty-Seventh Annual Meeting of the  
State Board of Agriculture, Held in the Caucus Room  
of the House of Representatives, Capitol Building,  
Harrisburg, Pa., January 28-30, 1914.**

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January 28, 1914, 9.30 A. M.

**SECRETARY CRITCHFIELD:** Gentlemen of the Board: The program announces that the Governor will be in attendance this morning and open the first session. The Governor is very busy just now and cannot come in for a little while, and since we have a good corps of Vice-Presidents, we will expect them to arrange among themselves for calling the Board to order and proceed with the business. The Governor will be in a little later.

Vice-President J. Aldus Herr then took the Chair and called the meeting to order.

**THE CHAIRMAN:** The meeting will come to order. Gentlemen, in calling our meeting to order, it is my first opportunity of appearing before you as Chairman of a meeting like this and I hope you will give us the support necessary to make the meeting successful. We have come here for a purpose, and we should, as individuals, try to accomplish some good for our constituents. If we were not sent here for a purpose and did not expect to do something, we had better stay at our homes. But I do not care to take up any time and will proceed with the general program as outlined. The Secretary will call the roll, and as each name is called, the gentlemen will respond.

The roll of members was then called by Assistant Secretary Weld, and at this and subsequent roll calls the following members were found to be present:

Hon. John K. Tener, Hon. Henry Houck, Dr. N. C. Schaeffer, Hon. A. W. Powell, Hon. N. B. Critchfield, Mrs. Jean Kane Foulke, W. Theo. Wittman, A. I. Weidner, A. J. Purdy, S. S. Blyholder, H. G. McGowan, Dr. W. F. Beck, B. Frank Wambold, L. J. Bearer, R. P. Heilman, Edward Lienhard, John A. Woodward, M. E. Conard, J. H. Wilson, Harrison Straw, Joel A. Herr, A. P. Young, John M. Wittman, John J. Rouse, John P. Smith, J. P. Young, Frank Rauck, C. E. Lantz, Geo. G. Hutchison, S. C. George, Peter B. Cowan, Matthew Rodgers, Horace Seamans, J. Aldus Herr, Sylvester Shaffer, P. S. Fenstermaker, A. J. Kahler, E. A. Studholme, M. M. Naginey, F. S. Brong, John H. Schultz, J. Miles Derr, C. S. Messinger, I. A. Eschbach, Clark M. Bower, B. F. Killam, John Shoener, Robert W. Lohr, E. R. Warburton, Calvin H. DeWitt, J. Newton Glover, R. J. Weld, James M. Paxton, W. F. Holtzer, G. A. Benson and Geo. F. Barnes.

**THE CHAIRMAN:** You have heard the roll called, gentlemen, and the Chair will now appoint a Committee on Credentials, after which

the Secretary will read the minutes of the previous meeting. The Committee on Credentials will consist of F. S. Brong, H. G. McGowan, P. S. Fenstermaker, Matthew Rodgers and Joel A. Herr.

MR. HERR: I have credentials to submit; therefore I don't want to act on my own credentials. Please appoint some one else in my place.

THE CHAIRMAN: Instead of Mr. Herr I will appoint Mr. Sylvester Shaffer. Shall we proceed with the report of the special committees or wait till the Secretary comes in with the minutes?

SECRETARY CRITCHFIELD: I have just been notified that the Governor will be able to come down now and I move you, sir, that you appoint a committee of two to go up and escort the Governor to the place of meeting.

THE CHAIRMAN: I will appoint Mr. Hutchison and Mr. De Witt. The Committee on Credentials had better take up that end of the work and look after those papers. The Chairman of that Committee is Mr. Brong. The Secretary has returned and we will now have the minutes of the previous meeting.

Assistant Secretary Weld then read the minutes of the Spring Meeting of the State Board of Agriculture, held at Washington, Pa., May, 1913.

THE CHAIRMAN: You have heard the reading of the minutes of the meeting. What action is to be taken?

On motion of Mr. Perham, the minutes of the Spring Meeting were adopted as read.

THE CHAIRMAN: Next, are reports of Specialists: First, is the report of the Pomologist, Chester J. Tyson, of Floradale. Is Mr. Tyson present? The gentleman is not present. I see Dr. William Frear, the Chemist, is present and we will have his report.

Dr. Frear made his report as follows:

#### NOTES ON THE USE OF RAW ROCK PHOSPHATE

---

By DR. WILLIAM FREAR, *State College, Pa.*

---

Mr. President and Members of the Board: I desire to select, for my subject today, "Notes on the Use of Raw Rock Phosphate."

The past decade has witnessed a slowly growing, but widely extended interest in fine ground rock phosphate, or floats as a phosphatic fertilizer. Judging by the frequent inquiries coming to my desk, the growth of interest is steadily increasing. This interest is reflected by frequent reference to the subject in the public press. The matter has received much attention and extensive experiment in Europe; as well as in America. In view of the volume of inquiries upon this topic, I have thought it a suitable theme for a brief discussion on this occasion.

The desire to keep down the cost of fertilizer applications, so far as may be without sacrifice of net profit, is natural. With rock floats containing 65 per cent. bone phosphate of lime, equivalent to 30.43 per cent. of phosphoric acid ( $P_2O_5$ ), or 608.6 pounds per ton, purchasable at \$8.00 to \$10.00 per ton, f.o.b. point of delivery in Pennsylvania; that is, at 1.3 to 1.7 per cent. per pound of phosphoric acid; and dissolved rock phosphate containing 14 per cent. or 280 pounds per ton, purchasable, under like conditions, at \$9.00 to \$11.00 per ton, or 3.25 to 3.94 per pound of available phosphoric acid, the temptation to give preference to the former material is very great.

Owing, however, to its comparative insolubility, raw rock phosphate has very marked limits to its usefulness. These limitations relate to the soil, the crops upon which raw phosphate may be used, and also to the materials suitable for application with it.

**Soil Limitations:**—The Association of German Agricultural Experiment Stations, at its meeting of September 14, 1907, passed a formal resolution upon the subject, declaring that the numerous experiments upon the use of phosphorites, or raw rock phosphates, having given useful results only upon acid soils, the Association was constrained to withhold commendation for their use upon other soils.

The most pronounced American advocate upon the use of raw rock phosphates in general fertilizer practice is Prof. C. G. Hopkins of Illinois. Even he does not regard them as immediately productive, except when applied to soils rich in organic matter, either already present or applied with the raw phosphate in the form of green manures or of heavy dressings of stable manure, and hopes for a cumulative effect in later years for pay back principal and compound interest of the fertilizer investment. In his interesting work on "Soil Fertility and Permanent Agriculture," he cites the long continued experiments of the Pennsylvania, Ohio, Maryland, Massachusetts, Rhode Island Experiment Stations, and prefers that their results for his guidance to those of European experiments, even though the latter far surpass in number the experiments made on this side of the Atlantic. The American experiments upon which Prof. Hopkins relies have the values that belong to long continued field experiments, whereas, the European tests have more frequently been of less duration and, in the greater number of cases, been pot or box experiments in which the soils have been out of the usual relations to the sub-soil, although the soil moisture has been kept more uniform than that of field soils. Nevertheless, we must recognize the fact that some of the European experiments have been made in the field and have continued for years.

It is worth while to consider certain facts concerning the soils upon which the above mentioned American experiments were made. Those of the Ohio and Maryland Stations showed a generous response to liming in experiments begun at about the time the phosphate experiments were started. The Rhode Island Station soil is notoriously acid, but part of the plants used were given very light dressings of lime. The land used in the Massachusetts experiment was old meadow land. The Pennsylvania experiments only have been conducted on limestone land and, at the time when the results of this set of experiments were published, it was believed that the soil was well

supplied with carbonate of lime. We now know, however, that most of our Station land is not alkaline, and that it tends to become so acid as to require liming for the maintenance of the best stands of grass and clover. In other words, these experiments cited by Dr. Hopkins were all made upon soils that were either somewhat acid, or, at the best, probably not far from neutral.

It is the general experience that, on distinctly acid soils—the raw phosphate commonly gives as good, if not better yields than the soluble phosphates, which may increase the acidity and its injuries to such plants as are sensitive to excess acid.

**Crow Limitations:**—The experience gathered from the various experiments—especially those of Wheeler of Rhode Island and of Kossonit and Prianishnikoo in Russia—indicates that some species of plants are far better able than others to use the phosphoric acid of raw phosphates. That is, there are some crops which will give a more immediate return than others from such fertilizer. The observations did not always include the same plants, and were made, some upon highly acid soils, others upon less acid or neutral soils; hence, conclusions have differed according to the conditions.

From the experience of fifteen investigators, we may conclude that: Buckwheat and mustard are able to use phosphoric acid and rock-floats even on non-acid soils. Of the legumes, likewise, crimson clover, aduzki beans and soy beans utilize it fairly well; peas, in moderate amount; red clover, cow peas and vetch, imperfectly. The cereals in general, are less able to use it than the legumes, but oats and corn use it more than most of the cereals; winter rye, moderately; in less degree, golden millet, Japanese millet (on acid soil), barley (on soil not too acid); wheat, very little. Among the root crops, potatoes (on acid soil) and mangels (on soil not very acid) use it in moderate amounts; but the turnip, table beet, carrot and ruta baga little or not at all. As to other crops, it is fairly effective with hemp and summer squash; somewhat so with rape and cabbage; very little, if at all, with the Hubbard and crooked-necked squashes, tomato, lettuce, spinach, and especially with tobacco, asparagus and flax. When the purpose of using raw rock phosphate is to increase the available phosphoric acid of the soil, the use of buckwheat, mustard or lupine as a green manuring crop to be grown with the raw phosphate, would seem to promise the quickest aid. In the ordinary four-course rotation, corn and oats, rather than potatoes, wheat, barley, and clover, would afford the best point of application. Crops of long period of growth, rather than those of quick growth, should be used with the floats.

**Adaptation of Associated Materials:**—In the recent literature, the highest interest centers upon the subject of the best material with which to mix the raw phosphate at the time of its application. The acid soils upon which its phosphoric acid becomes most available are little, if at all, neutralized by the phosphate of lime it contains; although the small amounts of carbonate of lime commonly present in the rock phosphate, may perform a little service of this kind. From many crops, the best returns upon acid soils are not to be gained without liming. What influence does liming have upon the availability of the phosphoric acid in raw phosphate? is the next

question: The experimental evidence is somewhat conflicting, but, in general, seems to warrant these conclusions:

When lime, in large excess acts upon insoluble iron and aluminum phosphates, the tendency is to increase the solubility of the phosphate in weak organic acids, providing the latter are used in quantity beyond that needed to neutralize the lime. The results obtained by the writer in experiments upon the effect of lime and magnesia upon the state of solubility of the phosphoric acid in various soils, may probably be thus explained. On the other hand, the experiments of Prianishnikoo, Nagarka, Schulze, Suzuki, Westheuser and Zielstorff, Ostryzauer, Rindell and Shuloo, all exhibited a depression, often very serious, of the availability to plants of the phosphoric acid in raw phosphates upon the addition of lime; although Wheeler and Schriener did not observe this in all cases. In the present state of our knowledge, it may be safest to adopt the rule, when raw phosphates are to be used on very acid soils, of adding only enough lime to reduce the degree of acidity, though not entirely to neutralize it, especially when the crop is to be used is particularly sensitive to excessive acidity. For in highly acid soils, no matter how rich in available phosphoric acid they may be, such crops will not thrive.

On soils that are neutral or but slightly acid, and in growing crops that are not especially acid-sensitive, the admixture of sulphate of ammonia with the raw phosphate has been found helpful in increasing the availability of the phosphoric acid. Nitrate of soda has the opposite effect, and, for this reason, has been used to replace a part of the ammonium sulphate when the crop was acid-sensitive. The nitrogenous fertilizer must be intimately mixed with the rock phosphate to have much effect. Potash salts, alter physiologically acid like ammonium sulphate, have not been found efficient in their action upon raw phosphates.

Probably the most interesting result of mixing other materials with raw phosphate upon the availability of the latter, is that obtained by the Ohio Station with a mixture of manure, stable or yard, with floats, in which it was found that the availability of the phosphoric acid in the floats was so improved that the crop increase gave a very handsome return on the phosphate cost. The fact is thoroughly established for the soil in question by the continuance of the test through a number of rotations; but the reasons for the result are not so thoroughly determined as to enable us to adopt it unhesitatingly as a guide to general farm practice. Various theories have been advanced to account for the result:

(a) That the raw phosphate prevented loss of nitrogen from the manure decaying in the yard of stable, and thus indirectly helped the crops on this soil, somewhat deficient in nitrogen. But the raw phosphate has no qualities that would lead us to expect it to prevent nitrogen loss during manure fermentation.

(b) That the manure fermentation itself makes soluble a portion of phosphoric acid in the raw phosphate, and thus the mixture of manure and phosphate is made directly to contribute soluble phosphoric acid to the soil. Years ago, however, Lupton tried without success to make Florida soft phosphate more available by rotting cottonseed meal intimately-mixed with the phosphate. In recent years,

McDowell at the Pennsylvania Station, the chemist of the Ohio Station and Tottenham and Hoffman of the Wisconsin Station exposed Tennessee Floats to the action of rotting manure under the normal conditions of heap fermentation and found no increased solubility of the phosphoric acid either in water or in the weak acids usually employed to measure it. Results in general accord with those obtained by Holdefleiss, Pfeiffer and Theirmaun and Krober in composting raw phosphate with various organic materials. Truog at the Wisconsin Station recently obtained similar results, using cow manure and June grass as the organic substance with which the phosphate was mixed in parallel experiments.

(c) That the carbon dioxid developed by the manure as it ferments in the soil, effects an increase in the amounts of phosphoric acid over that usually dissolved by the soil from the raw phosphate; and also, that the same gas excluded by the plant roots may supplement the work performed by the carbon dioxid from the fermenting manure.

That fermenting manure upon addition to the soil does for a time decidedly increase the carbon dioxid in the soil air has repeatedly been shown; also that plant roots excrete their gas, the more abundantly as the plant is the more vigorous in growth; also that water containing carbon dioxid in solution, can somewhat more largely than pure water, dissolve the phosphoric acid of raw prophphates. If then, a crop increases gradually in vigor because of its slight advantage in phosphoric acid supply early in growth, it might presently excrete relatively more dioxid and the more richly supply itself with this food in the later stages of its development. That the soil shows practically no more phosphoric acid soluble in water or in weak acids, with than without the raw phosphate, may be explained by the assumption that the extra amount dissolved during plant growth is immediately consumed by the plant.

There is much that lends acceptability to this explanation. Unfortunately, Pfeiffer and Blanck, working upon a soil that received no manure, but rock phosphate and soluble phosphate added to different soil portions cropped with oats and brans respectively, repeatedly treated the soil one of two sets of the cultures with large excesses of carbon dioxid. The gas did not increase the assimilation of the raw phosphates.

(d) Hopkins suggestions that the nitrates formed from the manure may account for the solution of the rock phosphates. Vivien has shown that manure composited with raw phosphate does form a small quantity of nitrates. But the manure is alkaline and contains other bases that can unite with the nitric acid more readily than lime from calcium phosphates. Only in case the formation of nitric acid occurred in a highly acid soil, would an attack by it upon the rock phosphate be repeated.

(e) Stoklass, Koch and Kröber, and Sackett, Patten and Brown, have shown that various soil bacteria, yeast and molds indirectly promote the solution of phosphoric acid from the rock phosphate. But the chief effect in the action is, again, carbonic dioxid. The weak acids, acetic, butyric and lactic formed by some of the bacteria do not attack calcium phosphate, so long as there is any more readily attacked compound present, such as the carbonates of lime and magnesia.

Before dropping consideration of the Ohio experiments, we must not in noting the large return gained from the combination of manure and raw phosphate, lose sight of the fact that manure and acid phosphate, supplying an equal amount of phosphoric acid, gave somewhat the larger net cash returns. Unless a larger application of the rock phosphate would give relatively larger crops, which is not established, true economy would continue in practice the method now giving the larger net profit per acre.

It is worthy of note that Wheeler, in certain experiments at the Rhode Island Station, upon soils deficient in phosphoric acid, used raw rock phosphate mixed with manure, and failed to obtain results parallel with those shown in the Ohio Station's reports.

From all of these data, we are compelled to the conclusion that the facts obtained by trial of the raw phosphates under various conditions, do not warrant us in expecting from their use, a distinct immediate advantage, that is, one that will occur during the first and the next succeeding years, except where the soil is acid in condition, or possibly where it is unusually rich in iron and aluminum oxids; and, in that upon other lands, and particularly for crops of a short period of growth, it will be wisest to continue the use of acid phosphates.

(At this point, Governor Tener entered the room).

**MR. HUTCHISON:** Mr. Chairman, the Governor of the Commonwealth, Hon. John K. Tener. (Applause).

**THE CHAIRMAN:** I will now turn the meeting over to Governor Tener.

Governor Tener then took the Chair and addressed the Board as follows:

#### REMARKS OF GOVERNOR TENER

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Mr. Chairman and Gentlemen: I am very glad to co-operate with the Secretary of Agriculture, Mr. Critchfield, in the arrangement of this meeting and to welcome you gentlemen here this morning. Also to suggest to the Secretary that he enlist the services of the heads of the several State Departments, that they might attend and address you on the work, the efforts and ramifications of their respective departments, all of which dovetail into the proper management of the affairs of this Commonwealth, because these department heads and their employes are simply servants of the State, and through them its business is transacted. Somebody must be Governor and somebody must be at the head of each of these departments, and it is assumed that we are attending to our work. If we were not here, someone else would be; so that the charge widely misses the mark when the assertion is made that the position of a State officer or employe is a sinecure, that we put in our time drawing our salaries and doing no work. To make at random such a charge against those who are here in office and who are conscientiously and efficiently performing their duties, is equivalent to losing your faith in humanity, and

to lose faith in humanity is to lose faith in yourselves as well. It is not to be supposed that you could do any better than they are doing, or that you would have a higher sense of the duty and responsibilities of the office than the present officials and employes of the Commonwealth.

I do not propose to make any extended remarks or go into details concerning the management of any of our departments, and certainly not of our Agricultural Department, because the Secretary and other officers of that department are here, and besides, I am sure that each of you gentlemen know more about agriculture than I do.

The respective chiefs of the departments of the State government will address you at this meeting if time permits, and I am sure you will find a great fund of interesting information in what they will tell you.

During the past three years very helpful and advanced and really progressive legislation has been passed by the General Assemblies of 1911 and 1913. New and much needed Bureaus have been created; laws of real material advantage to every citizen of this Commonwealth have been passed. Our Public Utility Law is one, and its provisions and administrations affect in a beneficial way every man here, because every one of you are users of such public utilities as transportation, power, light, heat, water and the real necessities of life. Under that law and through the administration of it by the Public Service Commission, every citizen is guaranteed that the utility companies of this State shall charge him only fair and reasonable rates for what they give, and those rates shall not discriminate in favor of anyone, and the whole basis and foundation of that Act is fairness and reasonableness. That will be the policy of the Commission and that is what you will get. Anyone who seeks more than simple justice to himself is not an honorable man.

The creation of our Department of Labor and Industry is another very important step in advance, and through that department, health and life in and about our mills and factories are safeguarded. Ventilation, light and sanitation are especially looked after by that department, and its whole purpose is to maintain a protecting supervision over working conditions in such places. And, so I might run through all the departments of the State here. You will have a representative from the Treasury Department, the Auditor General, the Secretary of the Commonwealth, the Commissioner of Banking, Dr. Dixon of the Health Department, Mr. Bigelow or one of his representatives from the Highway Department, and I think from every important department of the Commonwealth there will be a representative here to address you.

I do not know that there is any special message I would like to leave with you, unless I might touch again on that subject which has been brought into great prominence recently, and which, like the poor, is ever with us,—the subject of good roads. At the last election, manifestly the people of the State did not think that the plan proposed, namely, the issuance of bonds in the amount of \$50,000.00, was the proper method of raising money for this work. If there be a better plan to raise money for road construction, let us have it, but first let us make sure, until the Sproul Act is repealed—and I hope it never will be—that provision is made for the proper maintenance,

at least, of the entire 8,800 miles of highway under that Act. If that mileage of road is to be cared for hereafter by the State, let us see to it that the money is provided, so that our highways will be properly maintained, and that those highways embraced within the Sproul Act will be good ones at least ten months in the year. I believe you will agree with me that these roads are in better condition than they were last year, and in fact, better than they ever were before, but they cannot be kept in good condition and certainly not permanently improved unless money is provided. Therefore, let us, at all hazards, first provide enough money for their proper upkeep and then take up the construction of new ones; and, if the ordinary revenues of the State will permit it, all well and good; or, if we believe that direct taxation is the better way to raise this money, let that be the policy. I am still of the opinion that the way proposed, that is, through a bond issue, is the proper one. By this method, no tax would be levied to meet the principal of the bonds or interest thereon; no farmer's tax would be increased one penny; that every inch of property abutting on these roads or adjacent to them would enhance immensely in value, and that those who come after us may help to bear the burden through the same means as we today secure the resources for the running of the government of this State, namely, corporation taxes, licenses and fees.

Pennsylvania should be proud, and we all *do* take pride in the fact that for State purposes today, not one penny of taxation is levied against real or personal property. And so, if we could have these great improvements without the levy of such a tax, it seems to me it should be satisfactory all round.

I am now ready to proceed with the business of the day, and while I cannot spend much time at this meeting, I am so interested in knowing what you do and how you do it, that I will spend every minute possible with you.

**MR. FENSTERMAKER:** Mr. Chairman, the Committee on Credentials find two sets of representatives from Mercer county. We would like to have their representatives, John E. Vernon and W. C. Black, appear before us now.

**SECRETARY CRITCHFIELD:** A letter from Mr. Black says that he will not be able to be present at this session on account of illness.

**MR. J. ALUDS HERR:** Is the other gentleman present? I do not hear any response, Mr. Fenstermaker.

**The CHAIRMAN:** (Governor Tener). I am advised that Dr. Frear was advanced on the program due to the fact that Mr. Tyson was not in the room to take his proper turn. I now have the very great pleasure of presenting Mr. Tyson, for his report.

**MR. TYSON:** I have been suffering with a pretty bad cold for a few days and am not sure how I will get along with this, but I will do the best I can.

Mr. Tyson then presented the following report:

REPORT OF POMOLOGIST, 1914

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By CHESTER J. TYSON

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Your Pomologist does not understand it to be his duty to make a detailed crop survey of the State, electing, rather, to bring out just a few points that it may pay each member of the Board to take with him.

We may just note, in passing, that Pennsylvania had not over 50 per cent. as many apples as in 1912, which means a light crop. The best crops were found in Adams, Franklin, York, Lancaster and Perry counties, with a fair set of fruit all the way up the Susquehanna valleys, especially on the higher elevations. Both slopes of the Alleghenies and most of the State west, had practically a crop failure. Prices at picking time ruled around \$3.00 a barrel at shipping point in most sections of the State, and have improved somewhat since that time. Retail prices were, of course, proportionately higher. These are high prices and can hardly be expected to continue year after year. In fact, it may be many years before they are again reached.

This brings up the question so often heard these days, "Are too many apple trees being planted?" Not too many for the nurseryman who has trees to sell; but much the safest advice to the grower is to go slowly. I would especially caution the man just starting the planting of an orchard to make very sure of his ground, both as to finances to carry him over all times, and in respect to economy of production and convenience of markets.

When apples are selling at \$3.00 per barrel, the cost of production does not bother us much; but when they get down to \$1.50, and they may go lower, we must watch every corner of expense. A few cents either way on our expense account may mean profit or loss, and the profits are often eaten up by freight and hauling if the market is too far away.

I have two good friends who have settled this question beyond all peradventure. One of them has taken all the planting statistics he can secure and has worked out the number of bushels the country will be producing by 1915 and by 1920, and the result sounds rather discouraging to the man who has already found difficulty in selling his crops at a profitable rate.

The other man has visited the orchards of the Far West and has lived in Missouri, and is thoroughly familiar with the whole Middle West from Arkansas to Michigan. He says that the trees of the Far West are showing a decided tendency to be short lived, and that thousands upon thousands of trees in the Ozark region are already in a dying condition. He figures that the East must help to supply the Middle West, and he is sure that the low point of apple prices has been reached for many years to come. So there you are; you may take your choice. "Do I have an opinion of my own?" Surely, yes, but so had these gentlemen, and I cannot quite agree with either of them, for it seems to me that the man who has settled it by arithmetic is as far from the truth as the man who has taken his personal observation as the guide. So there you are again.

Here is my opinion for what it may be worth. In the first place, the Far West will never put the careful Pennsylvania grower out of business. The actual cost of production, plus the freight on Western fruit, will figure a handsome price for the Eastern grower. And this you may bear in mind. The markets of today will pay full as much per bushel for well grown Eastern fruit as for the Far Western when the grower's brand is known and the honesty of his pack is proven, and will use immensely larger quantities of the Eastern apples.

In the second place, we must remember that the Middle West is a great Ben Davis country; and while a great many good varieties are grown there, still a very great majority of the trees in this vast area are Ben Davis, Ganos, Missouri Pippins and others of low grade. To be sure, a great country-wide crop of Ben Davis means a lot of very cheap fruit. On the other hand, such condition always increases the difference between the prices of low grades and high quality fruits. I am pretty well convinced that if we are in business in the right way, and have been careful as to varieties, we need not greatly fear the Ben Davis competition of the Middle West.

We have disposed of two of the natural divisions of apple growing in the United States. How about our own section, the vast Winesap, York Imperial, Baldwin, Spy, Greeening section from the Carolinas to Canada and Nova Scotia? In my opinion, the really serious problem lies at your own door. Here and there over the whole area growers have been planting at a tremendous rate in the past ten years. In New York a majority of Baldwins have been planted, and in the Virginias perhaps more Yorks than any other. Neither of these varieties bear much under ordinary conditions before they are ten to twelve years old. This means that the next five to ten years will probably see the present number of trees in full bearing nearly doubled. I have figured entirely without the millions of trees planted in large "unit plan" or other similar scheme orchards, which I do not think need be considered at all.

Looking this condition calmly in the face, the conclusion cannot be evaded. It is hardly possible that the average prices for the next ten years can equal the average of the ten years past. Moreover, we must be prepared for a year after awhile when the orchards of our own section is in full blast and the Middle West has filled the South with its Bens, and has nearly enough better kinds for its own use, that we will begin to wonder what in the world is to become of all these apples, and the prices will go down, down, down. It is ever possible that several such years may come in procession, in which case some growers will become discouraged and many trees will be neglected and die.

It looks pretty black, does it not? Fortunately, there is another and a brighter side to the matter. There are a few well-known facts that help the situation a lot. Every dime dropped in the retail selling price of apples means increased consumption, thousands of barrels in the aggregate. A drop of fifty cents per barrel would probably almost double consumption. This means that before the price of good apples has gone down to an actual losing point, this great country of ours will be consuming tremendous quantities of fruit, and in that way the situation will to some extent correct itself.

Today, as never before, consumers, wholesale dealers and growers, both associated and independent, are aroused and are working to decrease the "cost of distribution," the difference between the wholesale price to the grower and the retail price to the consumer, the one greatest enemy to liberal consumption. In this regard, improved conditions are sure to come, and they will help in handling the large crops in the future.

Here is another cheering fact. In every market we find some fruit, a small percentage of the whole, selling at fifty cents to a dollar per barrel higher than the average market price. These are apples in the growing of which no detail has been neglected. They have been honestly graded and packed and probably bear the grower's name and address. It is entirely possible for anyone to grow and market fruit of this class, and yet hardly one out of ten will ever do it. Do you see the lesson?

In my opinion the great difference between the selling price of this strictly first-class fruit and that of the average grade will always exist, and it may even increase, and it is my firm belief that the time will never come when really high-class, well-packed fruit will need to sell at a loss.

I have gone somewhat at length into the discussion of this subject so as to make plain and strong the answer which I shall repeat and summarize as follows: Millions of apple trees have been planted throughout the country; years of low prices are absolutely sure to come; good fruit will always sell at a premium over ordinary fruit, and really good, honestly packed apples never need sell at a loss. Read that last clause again; it contains the kernel of the whole matter and every word in it has a meaning.

Good fruit will always sell at a premium over ordinary fruit. Grow the very best fruit that can be grown and secure this premium. Make it a habit and you will find that it is also becoming a habit with the man who handles your fruit to pay you a premium for it. Every day your position becomes better assured and the danger of loss in time of depressed markets becomes more and more remote.

Then you must bear in mind that honest packing is another essential. Pack honestly from principle, because it is right, not merely from policy, because you think it may pay. Be absolutely honest in everything you do; make it a habit of your life and the result will be that life will be worth living.

In these times of low prices that are sure to come we must be business men as well as apple growers, prepared at every turn to meet the demands of the market and ready at all times to stand for our own ground.

*Study the Markets:* If you have much fruit to sell it is important to know the markets to which it will go. Study their requirements and ship your produce accordingly. Most of you know from hearsay, if not from experience, that white eggs sell best in New York and brown ones in Philadelphia. It is just as true that York Imperial apples sell better in New York than Baldwins, but the reverse is true in Philadelphia and Pittsburgh. Grimes Golden and Smokehouse do not sell well in New York, but are in demand in Philadelphia, Baltimore and Washington, D. C. Greenings do not sell at their best south of Mason and Dixon's line. You see what I mean.

Study the markets. Keep track of prices, so you may know what your fruit is worth and can talk intelligently to prospective buyers. Take a good trade paper or two. Ask the dealers to send you quotations. Do not take the best quotation you can find. Average the lot. Visit the markets and compare prices actually paid with the prices quoted. You will find a great mass of fruit selling below quotations, while here and there you will see an unusually fine lot, well graded and neatly packed, and probably bearing the grower's brand, selling at a considerable premium. Are you contributing to the great mass or these occasional fine lots? Here is food for thought.

*Get acquainted with your trade:* Pick a very few good dealers and stick to them until you know them and they know you and your fruit. They can then offer your fruit with confidence to their best trades, and draw a premium for it.

*Establish standards and stick to them:* Do not put your fruit up one way one day and a different way the next, and keep your trade turning somersaults to keep track of the changes. The result will be that the trade will not bother to keep track but will buy from someone who has established quality and grades.

*Let your light shine:* There can be no virtue in over-modesty. Let the world know what you are prepared to do for its comfort. Some well organized advertising campaigns for the selling of fruit have been carried on, and have worked very well. Let every package of your fruit bear your name and address, and continually proclaim your business and the quality of your wares.

When you have found your man, stick to him. You may sell direct for cash; you may allow him to sell on commission, or you may make any other arrangements you choose, but stick to your man, and if you do your part you will find him able to do better and better for you each year.

Perhaps you cater to a retail store trade. This is very desirable business if you are prepared to handle it. To work out best you must have storage facilities to suit your trade. A great many stores with a good apple trade are looking for just such an arrangement. Get these men to visit your farm from time to time. Let them see the fruit growing. Show them how you grade and pick. Give them honest goods and you can tie them to you against any reasonable competition.

I have long been interested in a third method of selling direct from the grower to the consumer. I am sure it is worth a careful study. The present cost of distribution is too high, and this may be done one way to reduce it. I find there are a great many people in the cities just now who are anxious to try this plan, and most of them have in mind that they can buy direct at a great saving to themselves, which of course does not help the grower very much.

Be all this as it may, I am well and thoroughly convinced that the time will never come that we shall wish to do without the wholesale handlers of our fruits. The best of them have establishments in the city, open the year round. They have regular customers whom they supply throughout the year at prices we could not hope to secure with our fluctuating crops, an abundance one year and perhaps none

the next. These men are organized and are fighting many of our battles, because they are also their own battles. Through them transportation facilities have been much improved, refrigeration has been far developed, and right now the International Apple Shippers' Association is waging a telling war for increased consumption of apples—the one great hope for the thousands upon thousands of newly planted apple trees in the East.

You will probably say I have neglected my duty as Pomologist if I close this report without any mention of apple varieties. It is not my intention at this time to recommend a list for your planting. But here is a point that is worth taking home to every county in the State. Beware of new varieties with high sounding names and beautifully colored pictures in the nursery catalog. With a very few exceptions, the old well tried varieties are best. If you care to experiment, do it with a few trees. You may save yourselves many dollars and some sore disappointments.

The CHAIRMAN: It is always very pleasant and very illuminating as well to listen to one who knows what he is talking about. The stamp of success as a fruit grower is on Mr. Tyson, and I am sure that every one of you were as much interested by his report as myself. I understand now that the Committee on Credentials is ready to report, and we will be glad to have that report at this time.

The Committee on Credentials then presented the following report:

#### REPORT OF THE COMMITTEE ON CREDENTIALS

The following credentials of members were presented and found correct, and they were elected to membership:

| County                | Name                       | Post Office      |
|-----------------------|----------------------------|------------------|
| Washington, . . . . . | Jas. M. Paxton, . . . . .  | Houston          |
| Montgomery, . . . . . | John H. Schultz, . . . . . | Norristown       |
| Somerset, . . . . .   | Robert W. Lohr, . . . . .  | Boswell          |
| Clinton, . . . . .    | Joel A. Herr, . . . . .    | Mill Hall        |
| Dauphin, . . . . .    | E. S. Keiper, . . . . .    | Middletown       |
| Delaware, . . . . .   | Thos. H. Wittkorn, ..      | Media            |
| Tioga, . . . . .      | Calvin H. DeWitt, ..       | Mansfield        |
| Blair, . . . . .      | W. Frank Beck, . . . . .   | Altoona          |
| Union, . . . . .      | J. Newton Glover, ..       | Vicksburg        |
| Bucks, . . . . .      | B. Frank Wambold, .        | Sellersville     |
| Franklin, . . . . .   | J. P. Young, . . . . .     | Marion           |
| Beaver, . . . . .     | Walter C. Dunlap, ..       | West Bridgewater |
| Warren, . . . . .     | R. J. Weld, . . . . .      | Sugargrove       |
| Lancaster, . . . . .  | J. Aldus Herr, . . . . .   | Lancaster        |
| York, . . . . .       | Geo. F. Barnes, . . . . .  | Rossville        |
| Armstrong, . . . . .  | S. S. Blyholder, . . . . . | Kelly Station    |
| Mercer, . . . . .     | Wm. C. Black, . . . . .    | Mercer           |
| Wayne, . . . . .      | W. E. Perham, . . . . .    | Varden           |

We also recommend the following persons to be received as delegates:

E. Shuey, Clark G. Long, E. S. Risser, E. A. Weimer, F. R. Fertig, L. I. Bucher, S. P. Heilman, appointed by Lebanon County Agricultural Association.

Also the following gentlemen:

B. F. Kahler, Hughesville, Wm. Ball, Hughesville, Ed. Frantz, Hughesville, Walter Clark, Hughesville, Pa., K. W. Robinson, Port Royal, J. K. McLaughlin, Port Royal, A. S. Adams, Mexico, Pa.

#### SUPPLEMENTARY REPORT OF COMMITTEE ON CREDENTIALS

In case of Mr. J. Aldus Herr, the Committee reports, that it is their desire, and do recommend the seating of Mr. Herr as a member of this Board, with instruction that he secure the proper credentials (or his credentials from the regular County Agricultural Society of Lancaster county) and that he file said credentials with the Secretary of the State Board of Agriculture at as early a date as is possible.

In case of Mr. Edward Lienhard, from Carbon county, your Committee would say that Mr. Lienhard claims he forwarded his credentials to the Secretary of the State Board, and that said credentials must have miscarried in mail transportation. The Committee recommend that Mr. Lienhard be seated, subject to his filing with the Secretary the proper credentials at as early a date as possible.

SYLVESTER SHAFFER,  
F. S. BRONG,  
H. G. McGOWAN,  
P. S. FENSTERMAKER,  
MATTHEW RODGERS,

Committee on Credentials.

**MR. BRONG:** Going back over the list, we find some exceptions to some of the credentials, probably they may be minor. Clinton county, Joel A. Herr, of Millhall, we find no seal upon the credentials. Whether that is anything very serious or not, I don't know; we noted that as we went along, however. Also, from Franklin county, J. P. Young, no seal; from Warren county, R. J. Weld, no seal from the Society. In the case of Lancaster county, J. Aldus Herr, we find that his credentials are not from the Agricultural Society, but from an organization. We are not just so clear upon this point; it is open for the meeting for any discussion. Also from Mercer county we find two sets of credentials; one, however, we recognize as authentic, the name of W. C. Black, of Mercer, from the old Society. The other set of credentials name John E. Vernon, by the Stoneboro Fair Association. We have distinguished between those two, however, in favor of the name of William C. Black, for the reason that his credential is on the regular form sent out by the Secretary of Agriculture. Now all that needs to be settled, I believe, is the case of Mr. J. Aldus Herr, from Lancaster county, that I just spoke of.

MR. HUTCHISON: I move that the gentlemen named, as recommended by the Committee, be admitted as members of the Board, provided if it is deemed wise, that the case of Mr. Herr be taken up separately.

A Member: Which Herr do you mean?

MR. HUTCHISON: Mr. J. Aldus Herr.

The CHAIRMAN: What is the pleasure of the Board. Shall we act on it separately, or how shall we proceed?

SECRETARY CRITCHFIELD: I move that the one case upon which the Committee failed to make any recommendation be referred back to the Committee, and that the Committee shall make such inquiries as shall be necessary in order to satisfy themselves as to what should be done.

MR. HUTCHISON: That would follow. I made a motion that we admit all those gentlemen that had been recommended by that Committee.

SECRETARY CRITCHFIELD: My thought was upon something else at the time and I did not notice that.

Mr. Hutchison's motion was seconded and adopted.

SECRETARY CRITCHFIELD: I move that the gentlemen named be admitted to seats in council with us, with the privileges of the floor and those that were not read but were given by Mr. Rodgers be likewise admitted.

The motion was seconded and adopted.

MR. SCHULTZ: It seems to me there was a misunderstanding about the last action we took. I thought we were voting on the motion the Secretary made and some say we were voting on the motion Mr. Hutchison made; there is one motion that has not been acted upon.

The CHAIRMAN: I would suggest that a motion be made to accept the report of the Committee on Credentials with its recommendation and that the question of the eligibility of Mr. Herr of Lancaster county be referred back to the Committee.

MR. HUTCHISON: I make that motion that the report of the committee be accepted and the eligibility of Mr. Herr be referred back to the Committee for determination.

The motion was seconded and adopted.

The CHAIRMAN: We are coming now, gentlemen, to a discussion on that subject which has occupied the public mind very greatly during the past year, and as I said before, is ever with us, the question of Goods Roads. It is interesting to the pedestrian, to the farmer, to the driver, to the automobilist, and to all of us throughout the State. The automobile people, of course, are particularly interested in good roads. It is the subject of discussion at any of their

meetings. I was in Philadelphia not long ago, just at the close of the automobile show, when all of the representatives of the makers were bragging about their own cars and all of that, and there was one manufacturer who, perhaps, excels all others or rather his output in point of numbers of cars is greater than all others, and this representative was very proud of that fact and was claiming superiority and greatness over all his competitors, and he told his hearers that he represented a concern, a house, that turned out an automobile every three minutes and sold a machine every three minutes, a great boast to make and perhaps it was true, but someone sitting beside him said, "Well, you should do better, that is not enough." He said, "Do you mean to say that we ought to do better than make a machine every three minutes and sell one every three minutes?" He replied: "Yes, you ought to make one and sell one every sixty seconds." He asked, "How do you figure that out?" "Well, said the other gentleman, "They say there is a sucker born every minute."

So one should be careful how they boast. I am interested especially in this next report, and what it shall contain. If we are to know just what to do with our roads and what road laws are proper, what will fit and what will satisfy everybody—if this meeting can solve those questions, then it will be the greatest success in the history of agriculture associations, I am sure. We would like to hear from Chairman De Witt, of Mansfield, on Roads and Road Laws.

Mr. De Witt submitted the following report:

#### REPORT OF COMMITTEE ON ROADS AND ROAD LAWS

By C. H. DeWITT, *Chairman*

Mr. Chairman, Ladies and Gentlemen: The subject allotted to me is a large one and involves a mighty project, and when the Committee selected me to write or say something upon its merits or demerits, or both, it reminds me of the man in our county court whose word for truth and veracity was being questioned. Wishing to defend himself, he approached one man and told him the circumstances and the man said: "Why, John, I do not know anything about you, hardly know you when I see you." "Just the man I want, don't want you to know anything about me," he replied.

Roads, a subject that has confronted the nations from Abraham to the present time, and has not been satisfactorily solved as yet, and then expect a fellow living among the hills of Tioga county to tell how to solve this problem, and the people neither satisfied nor contented. When we stop and think of the great engineers and men who have made a life study of this mighty subject, and they are at variance as to the best methods to pursue, each state and locality demanding a different system, is it any wonder we get puzzled and confused and the work moves slow.

We hear it said many times, "I would do this or that, had I the power." I believe if there was some fixed rule or system to go by those who have the good road question to solve would be very much

pleased, and could give us good roads as fast as the money could be provided. But when you read of the troubles they have to contend with in other states we should be careful how we criticize our Highway Commissioners. They are human, subject to error the same as we. I was reading, not long ago, an article on "good roads" in our sister state, California. They appropriated \$18,000,000 for "good roads." The commission reported that if they had not had the support of the counties where these State roads passed through, in the counties building the bridges and granting the right of way and many other acts of encouragement, the good roads question in that state would have been a dismal failure. Are we helping our Highway Commissioners in this State like California, or are many of our public men playing penny politics and holding up a work that should have the support of a united people?

Our Highway Commissioners from the greatest to the least have done well, when you consider that they begin this work without survey or plot and no rule or system tried out with general satisfaction, and no friendly support like other states have given their officers, having in charge this intricate question of good roads. I trust that in the future we, as a people, will give to the cause of good roads the respect and charity that those that have it in charge are entitled to.

Mr. Chairman, I could have given you some history, figures and facts in regard to roads good and bad, what they cost per mile, number of miles built, number of miles to build, how they have built them, and many other things that would be State facts. The machinery for good roads, in the way of maps and figures, are worked out by those in charge.

I have no fault to find. In our country we are making decided progress, give our district Highway Commissioner "money" and "tools" to work with, and in a few years the people who travel the roads he looks after will be pleased with the results. You quite likely have read of good roads and bad roads, by those who have travelled over them, sometimes pleased and sometimes, I, at least, have said things that would not do to say in Sunday school. Let this be as it may. Let each and every man in the State take hold and boost and, if need be, do as they have done in other states, lay off your coats and spend one, two or more days on the roads in manual labor and show those around you that this mighty project must be solved and that old Pennsylvania shall have good roads.

Let us, as a nation, be represented by a National representative to all the National Good Roads Congresses through out the world. Keep up with the times and show to the world that America is in the lead on the question of good roads, as she has shown the world, in the building of the Panama Canal, that she is master of mighty projects that other nations dare not and could not accomplish. I believe no community should invest one dollar for good roads, unless, at the same time, provision is made for their care and maintenance. Good roads have a value beyond our imagination. Bad roads are our drawback to rural development, good roads mean a contended and prosperous people; bad roads mean a dissatisfied, discontented people flocking to cities; good roads mean better farms and better transportation. Bad roads mean poor transportation,

lack of help on farms; good roads will help to lower the "high cost of living;" help those who cultivate the soil and feed the people, and whatever help agriculture gets in this country will increase our wealth and power and benefit all the people.

SECRETARY CRITCHFIELD: Before we proceed to the next topic on the program, I want to say that there are but very few people here to-day or perhaps few living who were associated with the Board of Agriculture at the time I became a member, twenty-four years ago. I see a few present, and among those whom I recognize as being present this morning is our good friend from Chester county, Samuel W. Downing, whose voice was heard many times before the State Board of Agriculture, and whom I know we shall all be very glad to greet as we have opportunity. I would, therefore, request that Mr. Downing would just come forward and occupy a seat right here so that we may have the pleasure of looking at him and congratulating him on the prolongation of his life and usefulness, and express the pleasure we have at seeing him, and as soon as Mr. Downing will come here and say a word, I will be glad to have the program proceeded with.

(Mr. Downing came to the platform and was greeted with applause.)

MR. DOWNING: I appreciate the kindness of your Secretary in giving me such a pleasant introduction. I have been looking over the audience here and see quite a number of gray haired members of the Board and visitors, but I do not see—yes, I see one, Brother Joel Herr, who has been with me in past years, and he is the only one, I believe, that I recognize; but I am very glad to be with you and am pleased at the introduction your Secretary has given me.

THE CHAIRMAN: The question of roads reported upon by the Chairman of your Committee on Roads and Road Laws will be continued by a discussion practically on the same subject by a representative of the State Highway Department, Mr. Jones, who is next on the program. I presume Mr. Jones will tell you what the State is doing in his Department; but I do hope that before you leave you will come to some conclusion or that there will be a concensus of opinion expressed as to just what Pennsylvania, in your opinion, should do about here road improvements and her road maintenance. Let us have something definite. A definite scheme has been proposed for raising the money and was not acceptable. We have a definite, comprehensive plan of roads; just what they are and how they shall be built and maintained, that is, by what agency, namely the State, and where we have the State roads and the roads running into the townships, how and by what method money will be raised for the building of such roads—if we can have something definite, an expression here from this Board of some real, definite, specified, tangible plan, let us have it before you adjourn. If you think that out of the ordinary revenues of the State sufficient money can be appropriated at every session of the legislature, say so, and say how much money and how you are going to get it, keeping well in mind however that at the last session of the legislature some \$89,000,000 was appropriated by your representatives from the revenues of the

State which only amount to some \$63,000,000, or \$64,000,000, an excess of \$25,000,000 more than the revenue.

If such appropriations are to be made in excess of the revenues of the State, how are you to get an appropriation of a large enough amount of money to maintain all the roads to which you are committed, and also to build roads which you expect to build? Are you to take it from the upkeep of our institutions for the dependents of the State, the sick in mind and in body? And where are you to get this money? That is the question. Some people say that there should not be any State aid given to semi-State hospitals, and to a lot of our charities. I doubt if your representatives would agree with that, or if their constituents generally would approve of it. It has been stated that too much is given, perhaps. Well, your representatives gave it. They appropriated for our State hospitals, State institutions and semi-State institutions, \$20,000,000 at the last session, and the State Board of Charities recommended some \$16,000,000, and the final appropriation approved came within \$27,000 of the Board of Charities recommendations, and so it was based on absolute necessity and per capita cost rather than upon the guess work of your representatives.

But I will proceed now with the program and present Mr. Jones of the Department of Highways, and I would ask you gentlemen to be good enough to excuse me at this time and I will endeavor to return and participate in one of your future meetings.

(At this point Governor Tener left and Vice President J. Aldus Herr resumed the Chair.)

Mr. Jones spoke as follows:

#### RELATION OF PUBLIC HIGHWAYS TO AGRICULTURAL PURSUITS

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By MR. E. A. JONES, *Department of Highways*

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Mr. President, Mr. Secretary and Gentlemen of the Convention: I assure you it is a source of great pleasure for me to be allowed to participate in this convention, and I listened with a great deal of interest to the report of the Committee on Good Roads; and I agreed with the Chairman of that Committee in all that he has said, particularly as to the necessity of co-operation between township officers and the State Highway Department in general, in order to bring about the required results. During the past week I attended Supervisors' Conventions in four counties in the northeastern section of the State, and I am very proud to say that I found a splendid, harmonious feeling toward the new Township Act. Of course it is new, and like everything else that is new, it has to be tried out, but I feel warranted in telling you that I believe it is the stepping stone to something much better to come; it establishes a uniform system of working roads in harmony with the State Highway Department, and also in relation to the keeping of your accounts. Hereafter all township accounts throughout the State will be kept

in the same manner, a simplified, systematic way that will be a great help to the State Highway Department to have their figures at hand at all times so that they will be able to furnish you with whatever data you may desire.

But as I have been assigned the subject of "The Relationship of Good Roads to Agriculture in General," I presume the architects of this program had it in mind that I should speak of good roads in their commercial relationship to the agriculturist. That being the aspect of the subject, prosperity and good roads and the farmer are independent. In all new colonization movements, the first and most essential thing is to secure shelter and food for the settlers; the next important step is to secure an easy and quick means of communication, one with the other. All land in the, first place, was wild or woodland; that was the condition in which man found it. Its first change was wrought in the transformation from woodland to farm land. The cities sprung from the people's necessity for manufactured articles, clothing and machinery with which to till the soil, harvest the crops and reduce the farm productions to a condition suitable for human consumption became vital necessities. The skilled mechanic is found congregating in centers which we have denominated cities, towns and villages. These, too, are the centers of trade where men find opportunity to exchange the products of their labor for those things which other men produce and which either life, comfort or luxury prompt him to acquire.

When a city has sprung up, it immediately becomes the consumer of the produce of the agricultural lands surrounding it, and, as it increases in population, one of two things become vitally important, either to increase the production of the farm land, or to expand that area. This readily appears, for as the population increases, that which is essential to the maintenance of life must proportionately increase.

We may now profitably develop the thought: The farm produce consuming public in the city depends, first, for its life upon the agricultural area, and, second, it must solve the economic problem as to how the farm produce shall be made accessible to them.

One may be in the open air, and yet, if the facilities nature has provided for the transportation of air into the lungs are not able to perform their functions, suffocation must ensue; not for lack of air and its life-giving oxygen, but because the air is not transported to the point of utility. So, too, farm produce may exist in abundance, but its value to the consumer depends upon its accessibility at the point of utility; that is, the city or town in which the consumer lives. However, its value to the consumer is of no greater importance than to the producer, for the producer depends upon the necessity of his consumer, plus the consumer's ability to acquire.

The problem of accessibility solved, the next step lies in the means of accessibility which I shall now call transportation. It is useless to establish a line of communication between a great army of consumers in the city and their base of supplies on the farm unless that line can be operated at an inexpensive cost. The wagon road was the first line of communication; it is yet first in importance. The next step was the railroad. The latter is an essential aid to the commercial development of the country, and it is an indispensable

necessity to modern society. The usefulness of the wagon road and the railroad to society, however, depends upon their operating cost. Here is now suggested the next important problem to be solved in bringing the producer and consumer into their proper relation, and that is, the problem of how the cost of transportation shall be maintained at a price that is in harmony with the consumer's ability to pay.

The cost of railroad transportation is dependent upon too many influences, and railroad lines are not the best means of transporting farm produce to market, especially when the market is not too distant from the farm. But, whether the produce is to be taken direct from the farm to the market, or, from the farm to the railroad, the road over which the haul is to be made is of great importance.

It is but a few years since farm produce had to be hauled in wagons by horse power, now the motor vehicle enters into the equation. A year ago a farmer carried two auto truck loads of produce from his farm to Scranton, a distance of twelve miles. During the same day, in response to telephone orders, he delivered three more truck loads. Up to that time no such speed had been made in that market in bringing the producer and consumer into commercial relationship. This incident illustrates the possibilities of good roads and motor transportation.

But, whether the transportation is to be made by horse-drawn vehicles or by vehicles propelled by motive power, the condition of the road over which the haul is to be made becomes a vital factor in the cost. Bad roads raise the cost and they do it in at least two ways, first, by necessitating lighter loads, and second, by increasing the cost of the upkeep of the vehicles used.

By establishing good roads, the highway becomes an inducement to the agriculturist to transport farm produce in motor trucks, which makes possible more trips to market a day when the distance is not too great. It also has this great economic effect in expanding the agricultural area from which a city may draw the produce for the feeding and maintenance of its inhabitants, and, by thus drawing more lands into its garden area, it increases the value of those lands and enlarges the supply of produce in the market. The effect of this is to exert a two-fold influence in reducing the cost to the consumer, first, by increasing the supply of produce in the market, and, secondly, by reducing the transportation cost. The logic of that must appear in this—to make a rough and soft road smooth and hard is the equivalent of reducing a railroad curve to a straight line—it shortens the haul—for distance may be shortened as well by hours and minutes as by miles.

Thus looking at the proposition of good roads only as it may affect the immediate welfare of the consumer, the self-interest of that usually strenuous "kicker" ought to impel him to heartily advocate the improvement of at least those highways over which the farm produce must be conveyed in its journey from the soil to his table.

A consistent attitude on the part of the public requires it to adopt the doctrine of improved highways. The ingenuity of man has supplanted the flail with the threshing machine, the hand cradle with the reaper and binder. To encourage genius in these inventions, the government has protected the product of the inventor.

At first thought we may regard these inventions as labor saving devices; yet they are more than that—they are the means of increasing the productions of our farms and are essential to make farm productions keep pace with the growing necessities of an increasing population in the consuming centers.

We have encouraged these inventions because they are such important factors in the labor of keeping our food supply up to the requirements of society, and, within the last few years, we find our governmental energies being directed toward a scientific development of the art of agriculture. Almost all schools and colleges have incorporated in them a course in soil culture. Intensive, scientific and intelligent agriculture has become a necessity. Brains and science in agriculture are not being nurtured by our government merely to advance the prosperity of the farmer. His prosperity is an incident, although the greatest reason is to keep the food supply of the people at least equal to their requirements.

Yet how idle, how utterly useless to devote the time, labor and treasure toward increasing the production of the farm and ignore the economy of the very means by which that increased produce is to be transported to the beneficiary. It is but a wasteful extravagance to produce great crops, garner them into bulging barns, there to waste and decay, while, in the cities are multitudes of men and women hungering because the abundant harvest cannot be made accessible at a cost which they can meet.

Hard, smooth, substantial roads are not a luxury, they are as much a necessary element in the problem of feeding the people as is agriculture itself. The producing farm and the good road from that farm are inseparable—the one is useless without the other. The relation is as oxygen to the human body, as hydrogen to water, as sunshine and rain to vegetation. The very thrift and energy of the farmer, aye, the very production of any farm depends upon the facility afforded that production to move to its consumer. The relation is not only close, it is vital; they are both parts of a great economic plan of our government, the economic plan of feeding our people.

The relationship established, the necessity exposed, the question presents itself—who should carry the burden of cost of good roads. I do not propose to consume time in arguing out the thought. I have shown you who are the beneficiaries of good roads, and, if I have been clear, you must have grasped the idea that every man, woman and child who eats the products of the farm are the beneficiaries of economic transportation. The farmer in the country, the skilled artisan, the merchant and professional man in the city are all dependent upon the conditions of the highways. Therefore, they should all bear the burden of their maintenance. The road is no longer a local institution to be maintained by supervisors and repaired by men who work upon them in lieu of paying cash for taxes. The burden rightfully belongs to all, their duty requires them to carry it, be it light or heavy, and, the only means our constitution provides whereby each can carry his proportionate part of that burden is our State government.

A glance into the future discloses one thing which we must quickly realize. The roads must be adopted as the highways of the State.

The relation of good roads to agriculture is so vital that we may no longer expect the farm to rise to the requirements of the consuming public until an easy, cheap and ready outlet shall be provided for its crop. The time has come, the inevitable is apparent, Pennsylvania must welcome and support the natural offspring of its problem of feeding the people, the STATE HIGHWAYS.

**THE CHAIRMAN:** Gentlemen, that is the end of our program for this session. Is there anything else before we adjourn?

**SECRETARY CRITCHFIELD:** There will be a little time for discussion of the subjects that we have gone over this forenoon or for questions.

**THE CHAIRMAN:** We will now give a little time for the discussion of the different questions that have been before us. The first one is the report of the Specialist in reference to fruit. Do you want to discuss Mr. Tyson's topic? We will take that first, if there is anyone to discuss it. That is certainly an important question, the growing of fruit. If no one desires to discuss that, we will pass to Dr. Frear's topic.

**A Member:** Do the experiments with raw ground Tennessee rock show whether all of the phosphates it contains ultimately become available or not, or, if not all, about what part of it?

**SECRETARY CRITCHFIELD:** Mr. Chairman, Dr. Frear has had to leave the room; I believe he is a witness on a case that is being tried in Quarter Sessions Court, and so I think he is not here.

**THE CHAIRMAN:** Is there anyone present who can answer that question? If not are there any other questions?

**MR. JOEL A. HERR:** I saw Prof. McDowell in the room awhile ago; I think possibly he might be able to answer that question.

**THE CHAIRMAN:** If he is not present we will pass on to the next subject, the report of the Committee on Roads and Road Laws, by Mr. De Witt, and with that we might include Mr. Jones's paper on the road question. Now here is some food for thought.

**MR. KILLAM:** In relation to this road question, I move you now, Mr. Chairman, that a Committee of five be appointed to confer with the Commissioner of Highways and devise or adopt some plan of recommendation on this road question as to some way or means of providing and raising money for the maintenance and repair of such highways as we have, if nothing more, and the Committee to report at this meeting.

Motion seconded.

**THE CHAIRMAN:** It is moved and seconded that a Committee of five be appointed to act with the Commissioner of Highways in reference to some means in reference to the road laws.

**MR. FENSTERMAKER:** While I have no one plan to solve the road problem and we are all agreed, I think, without regard to party affiliations, we are all in favor of good roads, we disagree, however,

on the manner of paying for those roads. That is the visible line of disagreement, I think, and the Governor's suggestion, or he threw out the hint about the vast amount of money appropriated for semi-charitable institutions—it seems to me, it showed to my mind that that was a rather questionable thing to do, the State appropriating, as he said, \$20,000,000 to semi-State institutions where the State has practically no control. I can speak from experience. A surgeon or two will run that hospital, they control the hospital, practically. Anybody having an operation to perform for a member of his family or himself, they get the fee, the surgeons get the fee; all the institution gets is probably for the use of the room or the cot or attendance; the principal item of expense, the operation, goes to the surgeon; the State does not derive a cent of benefit from that and neither does the institution. This thing has become objectionable more or less, at least in our section, and they have what they call hospital days when all the churches are supposed to make a collection on a certain Sunday, but the donations have been getting less every year. That system of running hospitals is not a business-like way of doing it.

I know this is getting away from the road question, but just to show where monies are being diverted—why not have a business-like way of running these hospitals? Employ a surgeon and make people pay for operations who can afford to pay and then have the whole municipality feel that they own or control that hospital and not actually believe that is run upon that plan, and they would not be obliged to call upon the State for these large appropriations every two years. What takes place? These hospital associations see their members of the legislature and perhaps put pressure upon them, tell them "Get all the appropriation you can for our hospital, we have got to have it, if you don't, we are going under." The same thing is done in the other counties, and what takes place in the Assembly? Log rolling. "If you don't vote for ours, we won't vote for yours," and the result is they appropriate almost twice as much as the State's income. The very plan is a temptation to go wrong, and I would like this Committee, when it is appointed, to bring out how to derive means to pay for these roads; that is the important things. We are all in favor of good roads.

**MR. KILLAM:** My object in making this motion is that this Committee get in close touch with the Commissioner of Highways—they may not agree with the Commissioner of Highways and the Commissioner may not agree with them. I believe that the Commissioner of Highways has done good work, and I believe that anything this meeting can do to lend him a helping hand or they to lend the Department a helping hand will be of benefit to all of us, and I believe if this Committee gets to work and does their work fairly well, they may do some good.

**MR. HEILMAN:** I wish to make just one brief remark and that is with regard to taking anything away from the State hospitals. I was talking to a surgeon on the staff of one of those hospitals recently and asked him how much more money he made by being on the staff than he did before, and he said, "I make about half as much and do about twice as much work."

MR. KILLAM: We are getting away from the question.

MR. HEILMAN: One of the gentlemen said something about wanting to take money away from the charitable institutions and use it on the roads, and the point I want to make is that we should take nothing away from this one particular charitable institution. We all get the benefit of good roads, every man who travels the road, every man who walks on the road or uses it in any manner gets the benefit of it, and yet no farmer, no man pays a cent toward the State tax unless he has got money at interest, and I think there ought to be a per capita tax on every male citizen over twenty-one years of age for the purpose of road maintenance. I simply offer that as a suggestion, but I did not want to leave this question of taking anything away from the charitable institutions go without protest, because there are so many operations done in these hospitals for which the surgeons get no pay and these people are the ones who are not able to pay and they are the ones that the State pays for.

MR. BLYHOLDER: In regard to the Committee, as the question is now it seems to me that this is such a great question it would be impossible to accomplish anything by a Committee that had to report at this meeting. Now I move you, as a substitute for this motion, that this Committee of five be appointed for the purpose of interviewing the Commissioner of Highways and the Department, also to take into consideration the condition of taxation in Pennsylvania, and report to this body in one year from this date.

MR. STUDHOLME: I would like to suggest that if it is the wish to say that this Committee, if appointed, will get some information, will get some light and may do some good and report at this meeting, and they certainly will not overwork themselves; they won't report further than they can, and then it would be a good plan to continue the Committee in case they don't complete their work, which I doubt if they would.

MR. STUDHOLME: I would like to suggest that if it is the wish of this association to have this Committee appointed that they report not later than to-morrow afternoon, so we will have some time to discuss the report. I would like to have that added to the motion.

MR. KILLAM: The motion was to report at this meeting; they will report as soon as they can.

MR. BLYHOLDER: I would like to ask the gentleman to incorporate the other gentleman's suggestion to report not later than to-morrow afternoon, because usually at the tail end of these meetings is when they are all gone home and two or three reports come in of very vital importance.

MR. KILLAM: I will accept that amendment.

Mr. Killam's motion was then adopted.

THE CHAIRMAN: The Chair will appoint that Committee and announce it after dinner. Is there any other business?

MR. JOEL A. HERR: I don't want to discuss this question to any great length, but I think that one of the considerations for this

Committee should be the relation of the local road people, the supervisors, the township authorities and county authorities with the State. The disposition seems to be to take the work of the township and local authorities out of their hands and transfer it into the hands of the State and operate everything from State headquarters. That is one of the objections that has been urged and ought to be considered. Another important suggestion is, that we are not educated yet in road building. We have not got down to the kind of a road we want that is enduring; we want to get down to the cheapest practical, durable road; that is one reason for the dissatisfaction with road making. I would like to have that considered by this Committee in their report.

I would like to hear a word on road making from Brother Downing. Brother Downing was one of the early advocates of macadam roads. Early in the Board I remember he made several addresses on this subject, and one was out in the western end of the State and the subject was macadam roads, and some fellow read it and didn't pronounce it right and the question as he read it was, "How to make a Dam Road," and he said, "That's the kind of a road we have already got."

MR. KILLAM: I think the legislature has taken care of that matter very well in the last session. The legislature has been very friendly toward our Township Supervisors, and that is enacted in our law, and the way the law is, they are in close touch with the Department.

SECRETARY CRITCHFIELD: About the time this discussion began I was called into the lobby and did not hear what was said and do not know exactly what the state of affairs at the present time is. It does seem to me that to attempt to make a report—for a Committee to make a report of the magnitude and of the importance of this report that is being contemplated now, will require more time than can possibly be given to it here; and, inasmuch as we will meet again in about four months, which will be long before the meeting of our General Assembly, it does seem to me that there ought to be a Committee appointed which would take plenty of time to study this question, and if it be necessary, let them come here and spend several days. I think that we will have the means of paying their expenses. Let them come here and study this question and get such information from the Highway Department and from every other source as they may find necessary to make up a report that will really mean something. This is a very important matter. The State Board of Agriculture is a State institution. It is created by Act of Assembly, and any expression coming from this Board ought to have very great weight with the General Assembly, and it does seem to me that it will be hasty action if this Committee should attempt to report upon a matter of so much importance at this meeting. This will be a matter for you, gentlemen, to determine, but I wanted to express my own thought.

MR. KILLAM: That suggestion is very good. In my judgment that Committee will make only partial report or merely a progress report. That Committee cannot report on a matter of this kind

in one day or two days. The Committee would be wise enough, no doubt, to simply report progress; but get the thing in operation as an entering wedge to a good report and do some work on the matter.

MR. MATTHEW RODGERS: I think the gentleman's motion for a Committee to report at this meeting is suggestive. The State Board has a Legislative Committee which is a Standing Committee, and this committee, which is to report to-morrow afternoon, will bring up subjects on which we may want to make suggestions to the Legislative Committee of the State Board of Agriculture, which will be appointed later on, and it will all work together properly if properly conducted and we try to understand each other in the matter. The gentleman who made the motion I don't think expected to have a great, elaborate report come before this Board to-morrow afternoon; it will merely be suggestive to the Legislative Committee of the State Board of Agriculture, in my opinion.

SECRETARY CRITCHFIELD: Here comes in the difference of opinion as to what the functions properly are of a Legislative Committee. My thought always has been that the body itself, whether it be the State Board or whatever body it may be, shall first express what it wishes, what legislation it thinks is proper; then it becomes the business of the Legislative Committee to endeavor, by every right-ful means, to secure the passage of such legislation. I do not think that it is the work of the Legislative Committee to make up and finally pass upon themselves without reporting the whole thing back to the State Board, just what legislation the State Board wants. Therefore, my thought is that this Committee ought to be able to take up this subject, having plenty of time to go over it carefully, get information from every quarter from which they can get information, and then make a report at the next meeting of this Board as to what is the opinion of this Board upon the subject, and then let the Legislative Committee take it up and secure its passage by the General Assembly, if possible. If I am wrong, it is all right for some other course to be taken.

MR. BLYHOLDER: That's exactly my motion.

MR. JOEL A. HERR: I do not think that Mr. Killam's motion contemplates making a full report at this meeting, but it does contemplate allowing the members of this body to ventilate their ideas on the road question, so that, by a concensus of opinion, they can have something upon which to act for a future report.

MR. BLYHOLDER: Certainly; by the creation of the Committee they have got to report at this meeting; they have no longer life than that according to the motion that created them; that is the reason I made the motion that the Committee be appointed and continued for one year, then they will have a chance to do something.

SECRETARY CRITCHFIELD: If the Committee will report progress and continue their work and make a report at the May meeting, that will be all right. I didn't hear the motion.

ASSISTANT SECRETARY WELD: The motion as I have recorded it is this: Moved by Mr. Killam that a Committee of five be ap-

pointed to confer with the Highway Commisioner as to the best method of raising funds for the improvement of roads, and report not later than Thursday afternoon session."

MR. KILLAM: Report to this body. They might make such a report that this body might be glad to get rid of that committee at once and appoint another. When you stir up this road question, you stir up an awful affair; we don't know what it may lead to or how much discussion it may bring on, and if the Committee was continued, it would be instructed by this Board to report at some other time.

MR. JOEL A. HERR: I want to ask the gentleman whether he intends it to be a committee to consult with the Highway Commisioner, simply? Isn't it to consult with every member of this Board, every member of this body, and this body express their opinion?

MR. KILLAM: My intention was for that Committee to get everybody before it that wanted to come and go in with the State Highway Commissioner, let him know we were not firing any shots at him, get in touch with him and get suggestions from him and make a report as far as it could, which would not be very much, at this meeting.

MR. FENSTERMAKER: If I understand the wording of that resolution, it covers one item of the question, how to provide funds, and the Committee is limited to that. Don't lose sight of that, gentlemen. Besides, we have a Road Committee appointed to make a report at every annual meeting.

MR. RODGERS: My understanding was that the Committee the gentleman suggested were to be appointed to report tomorrow afternoon, to go before the Road Commissioner and find out what was wanted and then report back to this body and this body to deliberate on that subject. No Committee can be stronger than the body that appointed them, and that will be brought before this body and placed on the minutes, and then that report and any other matters can be referred to and taken up by a permanent Legislative Committee that you have in your organization and then acted upon. I think we misunderstand each other. The Chairman said that when we came here to work we came for a purpose, and now that we are here, let us stay till we are through if it takes all this week and part of the next.

The CHAIRMAN: Is there any other business before the house?

SECRETARY CRITCHFIELD: Before adjournment, I want to call attention to the fact that the Committee on Credentials returned with their recommendations, the credentials of W. A. Fisher, from Northumberland county, while our records show that Mr. I. A. Eschbach is at present a member of the Board from Northumberland county and that his term will not expire until January, 1916. I therefore, move that this matter be referred back to the Committee on Credentials and they will make inquiry as to how this happened.

The motion was seconded and adopted.

MR. RODGERS: I understand that our Brother, H. C. Snavely, is under affliction at the hospital, and I would suggest or move that the Secretary of Agriculture send him assurance of this body, and our earnest hope for his speedy recovery.

Motion seconded and adopted.

The CHAIRMAN: The Secretary has a letter to read.

Assistant Secretary Weld read a letter addressed to Hon. A. L. Martin, from Mr. C. S. Messinger.

MR. BRONG: In regard to the Credential Committee—If we go back to confer upon our worthy Chairman's credentials, we will be in the same position we were in before, and we would like to have information on the subject. I see that the Act creating the Board says "appointed from or by each agricultural society in the State." Now, is the organization that Mr. Herr represents, the Farmers' Union, an agricultural society, or is it simply an organization for buying and selling? We would like to be guided by your opinion. We would not like to miss Mr. Herr's presence, in fact, we cannot spare him, but would like some information on the subject.

The CHAIRMAN: I got my credentials signed by our Association. We buy and sell and also have a monthly meeting there for general information, and it is the same association that gave me my appointment or credentials the first time I was a member of your body. The name of the organization is the Lancaster County Farmers' Association.

MR. BRONG: I thought the credentials came from the Fair Association.

The CHAIRMAN: These credentials did not come from the Fair Association, but from the Lancaster County Farmers' Association.

SECRETARY CRITCHFIELD: It seems to me that this matter ought to come before the Committee. If the Committee wishes any information on that subject and will simply announce the time and place of their meeting, Mr. Herr can appear there or anybody else, to aid the Committee in coming to a conclusion. Mr. Brong, are you prepared to make an announcement of the time and place, or whether you wish any assistance?

MR. BRONG: I only speak for myself; I can meet at any time and place.

The CHAIRMAN: Will Mr. Brong make his announcement when to meet him?

MR. BRONG: I think we will meet at one o'clock in the Secretary's office. We would like to have Mr. Herr present.

The CHAIRMAN: Is there any other business? If not, a motion to adjourn is in order.

The Board then adjourned until one-thirty P. M.

Wednesday, 1.30 P. M.

Vice-President J. Aldus Herr in the Chair.

The CHAIRMAN: The meeting will come to order. I will announce the Road Committee, that was to be appointed by the Chair, to confer with Mr. Bigelow. It is as follows: Mr. B. F. Killam, Chairman; Mr. C. H. DeWitt, Mr. S. S. Blyholder, Mr. P. S. Fenstermaker and Mr. Matthew Rodgers. They are supposed to report at tomorrow afternoon's session.

MR. KILLAM: I want to give the Committee notice that we will meet at the first chance we get and as soon as we get in touch with Commissioner Bigelow. I will call a meeting of that Committee at three o'clock this afternoon at Commissioner Bigelow's office. Now, if we go there and he is not there, we will know it—three o'clock this afternoon at Commissioner Bigelow's office. Is there anything that interferes with that?

The CHAIRMAN: Nothing that I know of. I see the first thing on our program this afternoon is the election of officers. I believe we elect a President and Vice-Presidents.

MR. HUTCHISON: No, the Governor is President. We elect three Vice-Presidents. While I am on my feet, I will nominate Hon. J. H. Wilson, of Clarion county, for Vice-President.

Mr. Killam, of Pike county, and Mr. George, of Indiana county, were also nominated as Vice-Presidents, and it was moved and seconded that the nominations close. This motion was adopted, and, on motion of Mr. Hutchison, Assistant Secretary Weld cast the ballot of the Association for the gentlemen named as Vice-Presidents for the ensuing year, and they were declared duly elected.

The CHAIRMAN: Gentlemen, you have heard the result of the election. Will those gentlemen please come forward and take charge of the meeting and we will vacate.

Vice-President Wilson takes the Chair.

MR. HUTCHISON: I move that we proceed to the election of an Executive Committee.

Motion was seconded and adopted.

SECRETARY CRITCHFIELD: I wish to suggest that, in the election of an Executive Committee, it is well to be sure that all of them shall be persons whose membership on the Board will continue beyond January, 1915, for the reason that if they should attend the 1915 meeting and some other person should be elected to represent the county which they are representing for the term, beginning January, 1915, it would cause the presence of two persons from the one county, and matters of that kind sometimes give us trouble when we come to have the accounts audited.

MR. HUTCHISON: I don't like to differ with you.

**SECRETARY CRITCHFIELD:** Well, it don't make any difference if you do; those are the facts.

**MR. BLYHOLDER:** According to the Secretary's statement, those whose terms expire in 1915, are the ones that should be omitted from this Committee.

**SECRETARY CRITCHFIELD:** That is the understanding.

**A Member:** As Chairman last year, we took with us when we retired for action, the list of new members, and I think it would be well to follow that out this year.

**SECRETARY CRITCHFIELD:** You will understand now that persons who have been admitted during this session will be members one year from now and will be expected to attend, but it is those whose terms of service will expire with the year upon which we have entered. Am I clear with regard to that matter?

**MR. HUTCHISON:** A man is a member of the Board for one year, until the meeting in January next.

**SECRETARY CRITCHFIELD:** Therefore, persons who have been admitted to membership at this meeting will be eligible. I am just stating this as a matter of policy, so that we will not get into trouble when we come to have our accounts audited.

**MR. JOEL A. HERR:** I rise to nominate, I think, perhaps, the oldest active member of the Board,—A. P. Young, of Columbia county, as one of the Executive Committee.

Messrs. M. M. Naginey, H. G. McGowan and S. S. Blyholder were next nominated.

**MR. HUTCHISON:** We have one lady member of this Board, and I nominate Mrs. Jean Kane Foulke, of Chester county, as a member of the Executive Committee.

Messrs. W. F. Holtzer, John Shoener, J. Newton Glover and Geo. F. Barnes were also nominated, after which it was moved and carried that the nominations close. A motion was then adopted that Assistant Secretary Weld cast the ballot of the Board for the above nominees, which was done and they were declared duly elected.

**The CHAIRMAN:** Next on the program is the report of the Veterinarian, Dr. C. J. Marshall, of Harrisburg.

Dr. Marshall read his report which is as follows:

#### REPORT OF THE VETERINARIAN

By DR. C. J. MARSHALL

**Mr. Chairman and Members of the State Board of Agriculture:** As your Veterinarian I should like to talk with you a few minutes about the transmissible diseases of animals. There are about 130 such diseases known. We have but a few in Pennsylvania, ten of which are provided for by the laws of the State. Most of these diseases are

familiar to you, but the annual losses from them are a great deal more than we can afford to permit. It is estimated that we lose about \$5,000,000 worth of livestock annually from diseases that should be prevented. There are some of the transmissible diseases that can be controlled by the owner, as influenza and lockjaw. The State gives advice in treating or diagnosing any disease where many animals are sick or dying in any locality.

A certain class of transmissible diseases are of interest from a national or international point of view. During the last year we have had none of that class. Many of you remember when we had trouble with contagious pleuro-pneumonia in cattle. The last case of that disease was exterminated from the United States in 1891. Foot-and-mouth disease has occurred in Ireland and in England since our recent experience with it. In Germany and South America the disease is still prevalent and they are losing thousands of dollars annually because they don't know how to control it. The transmissible diseases that are most common in Pennsylvania are tuberculosis, glanders, hog cholera, rabies and contagious abortion.

There has been nothing new developed during the year in reference to handling tuberculosis. The State is trying to enforce the regulations and rules that have been in force for a number of years. We still consider the old-fashioned tuberculin test as the best method for diagnosing tuberculosis. For a number of years when the State was to pay indemnity for tuberculous cattle, the owner has had to sign an agreement to do certain things. First, the application has to be made by the owner himself. He applies to the Board and says that he believes he has tuberculosis in his herd and would like State assistance in getting rid of it. He is told that if he will co-operate with the Board the help will be given. He obligates himself in the form of agreement to remove any animal that has tuberculosis, to clean up his place, disinfect the premises in accordance with the regulations of the Board, and to put no animals in his herd until they have been officially judged free from tuberculosis. The State will give under such restrictions indemnity for condemned cattle, but it is not sufficient to cover all his losses, yet it is more than many other states are willing to give. The indemnity is limited to \$70 on registered cattle and \$40 for non-registered cattle, and the owner can get something in addition to this amount for the meat and offal.

The last year we tested about 20,000 head of native cattle under the above conditions and found about 12 per cent. of them tuberculous, and they were destroyed. It looks peculiar when we find 12 per cent. of our own cattle tuberculous and at the same time but one per cent. of the disease in cattle brought in from other states and tested. This should not mean that we have twelve times as much tuberculosis in Pennsylvania as there is in other states. Tests made on Pennsylvania cattle were in herds where the owner and our agents believe that tuberculosis was present. Dealers know that cattle brought into Pennsylvania will be tested, and if condemned, no indemnity will be paid for them. The only thing they can do is to have those quarantined that are condemned or have them destroyed and sell them for what they can get out of the meat. Consequently, dealers are hunting herds free from tuberculosis. It is remarkable that they can find herds so free from tuberculosis as is indicated by

the test made on interstate cattle. We know that tuberculosis is carried from animal to animal in a herd and that it may be carried from farm to farm or from state to state, and any way that we can shut off the source of infection would help the agricultural interests.

A great deal has been accomplished in the last few years with light and ventilation and general farm sanitation. Sunlight and air are the best natural disinfectants we have and the cheapest. Tuberculosis is spread from herd to herd in several ways. It is often introduced into a herd by buying animals from infected herds into those that are free from the disease. People who are interested in getting tuberculosis-free herds should buy only on the tuberculin test if it can be done. The disease is spread from herd to herd through the milk. Skim milk from a creamery is the most common source of danger. The milk from one tuberculous cow may contaminate all the skim milk returned from a creamery for food for calves and pigs. The last legislature made it necessary for creamery men to pasteurize milk before it is used for pigs or calves, and we are trying to put that law into operation as fast as good judgment will permit. It can be done cheaply and should prevent one important means of transmitting tuberculosis from one farm to another. The Bureau of Animal Industry reports one place where 75 hogs fed on skim milk from one creamery were sent to a slaughter house which was under Federal inspection and 60 were condemned for tuberculosis. If the creamery man cannot arrange to pasteurize the skim milk it can be easily done at home by heating it to 180° F. for not more than a minute.

Glanders is not very prevalent in Pennsylvania. The State pays an indemnity not to exceed \$60 for animals killed for glanders. During the last year we adopted a more accurate method for diagnosing the disease. It is what is known as the ocular mallein test. It consists in placing a few drops of mallein in the eye. If the animal has glanders it will show a mucous discharge from the eye. It has no effect on the eye of a healthy horse. We can also make a diagnosis of glanders by a blood examination. This is considered the most reliable test known for diagnosing glanders and contagious abortion. A horse may be a dangerous spreader of glanders, yet show no symptoms that are commonly found in the disease. Glanders is comparatively easy to recognize when external lesions are present.

Pennsylvania is not considered a large hog raising state. Our last census showed that they were valued at about \$6,500.00. The State of Iowa lost \$16,000,000 worth of hogs last year from hog cholera alone. Hog cholera has occurred in a good many counties in Pennsylvania during the last year, but so far we have been able to control it with a serum injection, quarantine and disinfection. An outbreak of hog cholera should be reported promptly to the State Livestock Sanitary Board, and if properly handled, 80 per cent. or 90 per cent. of the hogs can be saved. If the disease is allowed to run a week or two before anything is done, the owner then may lose 60 per cent. or 80 per cent. of his hogs. The herd is put under quarantine where the disease occurs and the quarantine is kept on for thirty days after the last case has been observed. We consider the premises free from infection in thirty days after the last case of cholera was seen provided the necessary precautions for disinfection have been observed.

There was less rabies reported last year than in previous years, and we think it is because there was a vigorous campaign made against the disease a year ago. A number of people were bitten by rabid dogs, and in a good many cases, the county had to pay for the Pasteur treatment for those people. There is no reason why rabies should not be controlled completely. The disease is only transmitted by rabid dogs, and if people would take care of their dogs there is no reason why it should be spread. Scavenger dogs that have no homes are the principal spreaders of the disease. Probably they are to blame for most of the outbreaks, yet occasionally a dog that has a good home develops the disease and escapes from his master and goes over several miles of territory biting persons, dogs and other animals and spreads the disease badly. A good many counties in the State are adapted to sheep raising, but dogs destroy so many sheep that it makes the business unprofitable. The law passed in 1909 making it necessary for dogs to wear collars or compelling constables to destroy them if not licensed, is a dead letter in nearly every county.

Anthrax and blackleg occur only in isolated sections of the State. Instructions are sent every year by the Board to those farmers who have had trouble with either of these diseases in previous years and they are advised to have their animals vaccinated. This work is done at the expense of the State. There is very little danger from either of these diseases where the animals have been vaccinated at the proper time.

DR. CONARD: The Doctor spoke of pasteurizing the milk for the calves. How do you keep that milk through the day?

DR. MARSHALL: We have just started the work and no definite plan has been adopted.

DR. CONARD: How would it do, Doctor, to put that milk, immediately after it is heated, into something similar to a fireless cooker or a box made with non-conducting wall, and keep it above 140 or 120. If kept that way above the temperature at which the germs would grow, would that affect the digestibility of the milk or would that keep it in pretty good shape for feeding?

DR. MARSHALL: I don't know how that would turn out. If milk is heated to 140° for twenty minutes the tubercle bacilli would be destroyed, and it would not be reinfected as long as it were kept at that temperature.

DR. CONARD: Suppose it is heated up to 150 and set in this box to retain the heat and you keep the milk all day above the temperature where germs can grow; if it gradually cools down by night again, if it is in a bad atmosphere, it will be reinfected, and I thought that by keeping it at that high temperature, we could have it as sterile in the evening as it was in the morning.

DR. MARSHALL: Perhaps that would be a good thing to do.

MR. HEILMAN: I would like to ask Dr. Marshall whether he has any means of knowing whether the animals tested for tuber-

culosis in other states had been tested by the tuberculin test before coming here and whether or not the animal reacted the second time?

DR. MARSHALL: Nearly all states require that tuberculin tests shall be reported to those who have charge of the diseases of animals. That rule is not absolutely followed in all states and there is a good bit of testing done in other state and not reported to anybody except the owner. An animal that has been through a test of that sort and submitted to another test may have tuberculosis and fail to react. A certain percentage of them have the disease and will not react at all, but after two months you can test them again and they will usually react but not always. The first test on animals is always the most accurate of any test that can be applied.

MR. HEILMAN: Have you any means of finding out whether they had been tested before?

DR. MARSHALL: No positive method.

MR. GEORGE: I would like to ask in regard to hog cholera. May it not come sometimes from a very unexpected source? The point I wish to make is this: there was an outbreak in our neighborhood sometime last fall, about half a dozen different farmers had an outbreak of cholera and in every case they traced it back to where the people had been feeding meat scraps to their chickens.

DR. MARSHALL: It is very confusing sometimes to account for an outbreak of hog cholera. It may jump from one section of the country to another in mysterious way. It is usually carried by an infected hog, but it may be transmitted by buyers, infected grain bags, dogs, cats, pigeons, sparrows and uncooked garbage, meat scraps, etc. It does not spread through the air unless carried on some contaminated body. We have often had dogs sick and dying with cholera in one pen and susceptible hogs under the same roof and separated only by a cement wall as high as a man's head and remain healthy.

MR. HEILMAN: The thought I had was this—that meat scrap was made from hogs that had been infected with cholera and reared in that way.

DR. MARSHALL: The danger of infection might be eliminated by cooking the scraps.

DR. BECK: Would there be any danger in getting corn from the West?

DR. MARSHALL: Corn that comes from sections where cholera exists might be infected.

MR. MARTIN: I would like to ask of it would be good practice for persons when they have no disease on their farms to use vaccine?

DR. MARSHALL: If you give serum to those that have the disease or have been exposed to it those that recover will have a permanent immunity. If you give the serum to those that do not have the disease or have not been exposed to it the immunity produced by the serum will only last three or four weeks. We have been using the serum only where the disease existed.

MR. COWAN: I would like to know by what method we are going to prevent the spreading of the disease when the veterinary surgeon called in pronounces it something else than hog cholera, and permits that state of affairs to continue for several months and the neighbors don't know there is hog cholera in the neighborhood from the fact that the veterinary surgeon says it is not but is simply an affection of the lungs?

DR. MARSHALL: That is a hard question to answer. You better get a better veterinary surgeon.

MR. COWAN: The Doctor no doubt has some recollection of a little incident up in our section of the country, a veterinary surgeon treated a drove I had up there and the surgeon asked me where I had gotten them. I said from those people that didn't have it. In the neighborhod there were some six cases and the veterinarian pronounced it pneumonia and it scattered all around the neighborhood for miles. This neighbor sold some pigs from his farm and I think that nearly every place where they were sold the hogs became infected—I think they were Berkshires. I had never had anything of that kind in there before and asked a veterinarian to come and look at them. I said, "I think I've got hog cholera." "Where would you get it," he asked. I said, "From the man that didn't have it." I sent for doctors from the State Livestock Sanitary Board and they told me that it was hog cholera. I would like to know if there is some way by which we can get the proper diagnosis on those sick animals when the doctor is called in. It was a matter of the loss of 44 hogs to me by not knowing what was in the neighborhood.

DR. MARSHALL: The only thing I can say to the gentleman is that I think the better veterinarians know hog cholera when they see it, and if you will notify the State Livestock Sanitary Board at Harrisburg they will send an agent to make an investigation; or if you will send a sick or dead pig to the laboratory of the State Livestock Sanitary Board, 39th Street and Woodland Avenue, Philadelphia, the Board will pay the express on the package and send you a diagnosis as soon as possible.

MR. COWAN: They did that with me very promptly, too.

At this point a motion was adopted that the Board proceed to the election of an Assistant Secretary, as was done last year, and Mr. Weld was unanimously re-elected.

THE CHAIRMAN: It has been suggested that as the members of the Board are about all here, the place for the June meeting be selected now.

MR. BRONG: I rise to nominate a place for the Spring Meeting which was before this Board last year. We have a section of country, the county seat of which is at the edge of a country which is noted for scenery and to which thousands of people yearly come from the cities to spend a certain time. Stroudsburg has a community surrounding it, which, for natural beauty is perhaps not surpassed in the State. We have within a five-mile radius the Delaware Water Gap, which is visited and admired by many people every year. Right

below the Delaware Water Gap was, up to the time of its completion a few years ago, the largest concrete structure in the world. I refer to the D., L. & W. railroad bridge across the Delaware River.

The people of our county seat are not slow, which you will notice when you meet them. The town holds two world's records. We have in our borough a woolen mill which holds the world's record for completing a suit of clothes in the shortest time. A few years ago the President of that Company arranged with his employes to convert wool into a finished suit and they arranged for that to make a record time, and the record time they did make. The wool was taken—the sheep sheared—soon after opening in the morning, and in the evening the President of that concern sat down to his meal with the finished suit, beating the world's record by an hour and some minutes. Soon after that, one of the newspapers of the town also wanted to make a record and it also was a world's record, and they arranged with a paper mill, which is located close by, to convert timber into paper, and this also was accomplished in less than a day; the evening paper was printed on paper the wood for which was cut in the morning. I have at the hotel, but I didn't bring them over here, but on the suggestion of the Deputy Secretary, I went to see the hotel people in our town, in the borough, and I have their signature and I have their rates for accommodations in the old town for 210 guests. The rates run from \$1.50 to \$3.50 per day, \$2 being the average. In the Borough of Stroudsburg, which is just across the river, two or three minutes' ride on the car and five minutes' walk, we have accommodations for 200 people more; at the Delaware Water Gap, which is about five minutes' ride on the street car, there are accommodations for about 500 guests more, so you see the community would be amply able to take care of this body. Our people are very anxious to entertain you and I assure you that if you come you will be royally received.

MR. KILLAM: I would rise to second the suggestion of Mr. Brong for a meeting at Stroudsburg, Monroe county. All he has said about that section is true, and even more; it is a good agricultural section around there. The people are looking for the State Board to meet there some time. Mr. Brong has made the effort for three or four years and has not met with any success, and I do beg of you to let that meeting go to Stroudsburg next May. We have the beautiful Delaware Valley there; we have forty miles of the finest road in the State and that road is not made by the State, either, it is beautiful by nature, and we have ample railroad facilities for getting there, the D., L. & W. and Pennsylvania. There is no trouble about getting there and getting away, and we have hotel accommodations second to none. There's The Indian Queen, as good a hotel as you will find anywhere, and there are others nearly as good. The accommodations are excellent and the beautiful Delaware Water Gap, the Switzerland of this country, and the Delaware Valley from there to the New York State line is as pretty a valley as you will find in this Commonwealth. Those are facts which can be vertified by the men who have been there and seen it, and I will second all that Mr. Brong said in the matter and even more, and the agricultural sections round about there are very good.

MR. SCHULTZ: I wish I were an orator, but I am only an up-country Dutchman, but Norristown, Montgomery county, is making a bid for this meeting, and we have something they don't have at Stroudsburg. Stroudsburg is a nice place, and as far as I personally am concerned, I'd rather go to Stroudsburg than to Norristown, because if this meeting comes to Norristown, it means work for somebody; but what I am going to say is this: we have ample accommodations for you at Norristown. It is easy of access, especially from the western part of the State; you can come right down to Philadelphia and up to Norristown, which is only a few miles. We have splendid hotel accommodations. The Chamber of Commerce, this last week, called a special meeting at Norristown and that meeting passed resolutions inviting this body to meet there and made themselves responsible to meet the people as they come in on the different trains and see that they get proper accommodations. The hotel keepers promised that they would not put their rates up for the sake of getting money out of the members of the State Board; and further, there is only one Valley Forge in the United States.

The members of this Board, no doubt, have all heard of Valley Forge, but it is a question in my mind whether half of the members have ever been there. Valley Forge is worth visiting, worth paying a special visit from any part of this State, but what the Chamber of Commerce promised the other night is this, that if this Board sees fit to come to Norristown, we will give the members and their friends a free automobile ride to Valley Forge, through that historic place, showing the beauties of it. Since the National Government took hold of it, many of you people wouldn't know it today, and I think it is well worth while visiting. Therefore, I believe that if you decide to come to Norristown, you will be better satisfied than if you go to Stroudsburg. I have nothing against Stroudsburg at all, but I believe that what you want to do is to take in that trip to Valley Forge; and as far as the farming community is concerned, Montgomery county don't need to take a back seat with any county, I believe. We have a good agricultural section right around Norristown, and I want to invite you to come to Norristown and I hope that when it comes to a vote, the majority will vote for that place.

MR. WELD: A good many of you have come up to northwestern Pennsylvania during the winter, and you have put on extra coats and tried to keep warm. Warren, the county seat of Warren county, invites you to come up and hold your June meeting in our beautiful agricultural section beyond the Alleghenies. We can furnish you good accommodations, good railroad facilities for getting there; the Erie Railroad runs through New York State, to be sure, but it follows the northern line of Pennsylvania the whole length of our State and will land you in Jamestown and you can drop down to Warren by an excellent trolley system. The Pennsylvania Railroad runs right through Warren, so it is quite accessible, so far as railroads are concerned. It is a beautiful section, as you will find if you come there in the summer time. It is on the Allegheny River, and you have never been nearer western Pennsylvania than Lock Haven or Newcastle, and if you don't come to Warren this year, we do want you in the near future to come to northwestern Pennsylvania.

and encourage and help our farmers and stimulate them with the stimulus that comes from a meeting of the State Board of Agriculture.

MR. KILLAM: I know that country around Norristown; the farmers there are so thrifty that they need no incentive from this meeting. But in poor Monroe county and near Pike, they need all the assistance they can get. My great grandfather wintered at Norristown, at Valley Forge, in 1778, and I don't care anything about seeing it, never have seen it, and I was wondering if we should go to Norristown, whether we wouldn't be a little bit too near the great city of hobble skirts, Philadelphia, and I think the greatest benefit that can be derived by our people and the most pleasure that the State Board can get out of the trip is to go to Stroudsburg.

MR. JOEL A. HERR: I understand that Norristown and Warren each have an insane asylum, and we'd better not go there.

MR. SCHULTZ: I don't think the good brother would want us to infer, when we look around here at these bald heads, that they would be influenced by the hobble skirt; therefore, I make a motion that we come to Norristown.

Motion seconded.

MR. KILLAM: I beg your pardon, Mr. President, there are three places nominated and I believe the proper way is to call each man and each county and let the Secretary record where he votes to go. Isn't that the correct practice?

The CHAIRMAN: Yes, sir, the Assistant Secretary will call the roll and let each individual mention his preference when his name is called.

The roll was then called and resulted in the selection of Stroudsburg, which received 32 votes, as against 12 for Norristown and 2 for Warren.

On motion, the vote for Stroudsburg was made unanimous.

MR. BRONG: I want to thank the members of the Board for their action and we will try to prove to you that you will not regret your vote this day.

MR. SCHULTZ: I hope we won't hear the reports we heard from one of our Institute workers, who traveled through that county. He said they robbed the people. Mr. Brong said they wouldn't do it and we will take him at his word.

MR. BRONG: The Credentials Committee have a report they would like to make in the case of Mr. J. Aldus Herr. The Committee reports that it is their desire, and they do recommend the seating of Mr. Herr as a member of this Board, with instructions to Mr. Herr that he secure the proper credentials, or his credentials from the regular County Agricultural Society of Lancaster county, and that he file said credentials with the Secretary of the State Board of Agriculture at as early date as possible. There are two Societies down there, a farmers' organization and the regular County Agricultural Society. I might say there is no friction whatever in the So-

ciety, only the people of Lancaster county have been in the habit of sending Mr. Herr through the farmers' organization and the Agricultural Society has been neglecting to do anything along that line; but Mr. Herr says that he can easily secure the proper credentials from the regular County Agricultural Society. In the case of Mr. Edward Lienhard, of Carbon county, the Committee will say that Mr. Lienhard claims that he forwarded his credentials to the Secretary of the State Board and they must have miscarried in mail transportation, and it is the desire of the Committee that he will also secure the proper credentials and place them in the hands of the Secretary at as early a date as possible, and we recommend that he be seated subject to his filing of these credentials with the Secretary.

**MR. JOEL A. HERR:** At our last meeting at Washington, I believe it was, there was a Committee on Memorials appointed, consisting of Mr. Rodgers, Mr. Black and myself. There has come to my notice no death in the ranks of the Board's present or past membership, except that of William B. Powell, of Crawford county. Now, I want to ask the members of the Board present to notify us if there are any others that we don't know of who have passed away during the past year.

**The CHAIRMAN:** If there's any member present who knows of any other death, he will report it to the Committee. The next subject on the program is Sanitation, by Dr. W. Frank Beck, of Altoona.

**SECRETARY CRITCHFIELD:** Before we pass to the next item on the program—there wasn't anything done with the report of the Committee on Credentials, and I move the adoption of that report.

The motion was seconded and adopted.

**The CHAIRMAN:** We will now hear from Dr. Beck.

Dr. Beck's report is as follows:

## SANITATION AND HEALTH INSIDE THE HOUSE

By DR. W. FRANK BECK, Altoona, Pa.

When we look at the many great discoveries of recent years, none stand out brighter, none are more important to the human race than those of Sanitation and Medicine. I could mention such as Antitoxin preventative inoculation as perfected by Pasteur; transmission of diseases by insects, antitoxin for typhoid and the X-ray.

If the farm home is to be attractive it must be made healthy, for good health is more important than the best crop that can be raised.

### KITCHEN

If people want to enjoy good health, the kitchens should be properly cared for. More trouble can originate in an unsanitary kitchen than in any other place in this world. Many people who plan homes

put all the thought on constructing a beautiful and convenient house and leave anything to answer for the kitchen. Much of the happiness and success of the home will depend on how the kitchen is kept and run. Many of the most important battles of life must be fought out in this room. In building the kitchen I believe in having everything wood, bare wooden shelves, bare wooden floors, etc. There should be no enclosed cupboards constructed in kitchens or anything else that cannot be effectually sterilized with boiling water. In sterilizing wood with boiling water, you should immediately follow it up with cold water. This prevents the wood from becoming soft and spongy. The dish cloth and tea towel should be used as little as possible. Instead of wiping dishes, they should be put in a rack, and the last process in washing dishes should be rinsing them with boiling water and leave them to dry. Dish cloths should not be used for lifting pots and pans. A thick pad should be made out of old cloths, and when they have served their purpose, they can be burned in the stove. While in use they can be sterilized in the oven with dry heat and used for a long time.

Cooking utensils should be made only of aluminum and plain old-fashioned iron. The chemical action of food has least effect on these than any other substance. Cheap granite and enamel ware should never be used in the kitchen. The sharp slivers scale off and are exceedingly dangerous when eaten with the food. It has been proven by some authorities that they have caused cancer of the stomach and appendicitis. This may answer the question as to why these diseases are increasing daily.

Paper napkins and paper tablecloths should be used more in the home than they are. Linen, which is easily soiled, is hardly ever kept in proper condition. Spots of grease on the napkins and tablecloths are a fertile field for the growth of bacteria.

#### REFRIGERATORS

The refrigerator should be looked after much oftener than it is. In the past year I have inspected about one hundred refrigerators, and out of this number, I found not one kept in a proper sanitary condition. I venture to say that not one out of ten thousand in the Pennsylvania homes is perfectly sanitary, and it is dangerous to the health of that home. The refrigerator should be constructed so as to have a good circulation of pure air. If it has this, it matters little what materials it may be constructed of. After examining many refrigerators of all kinds, I prefer to recommend one that is lined with plain wood so that the inside construction can be easily removed and sterilized with boiling water. The proper refrigerator then would be one with a free circulation of air, one that is constructed of wood, and one that can be easily sterilized with boiling water. Many people have the idea that because it is the refrigerator, it needs no care and anything can be crowded into it so long as it is called a refrigerator. Ice boxes which are commonly used are dangerous in every way and their use discontinued. They have no circulation of air and are hard to keep in a proper condition.

If the ice becomes exhausted the warm, wet, soggy condition inside, means a fertile field for the growth of bacteria of all kinds. The

care of a refrigerator should at all times be under the direct supervision of the head of the house and should not be left to those who look after it in a haphazard way.

### FLIES

I claim the honor to be among the first to have written anything against the common house fly or denouncing him as dangerous. Twenty some years ago, while delivering a lecture, entitled "Public Hygiene" at the Court House in Mifflintown, Juniata county, at a teachers' institute, one of the things I said was: "The common house fly was the most dangerous living creature." Up to that time and for ten years later the fly was known as nature's scavenger. It is an absolute fact that common stable manure is a breeding place for flies. Last year I carried on an experiment in a stable. I found that where the manure was kept perfectly dry, the flies did not breed at all, but where the manure was kept wet, they bred with wonderful rapidity. It has been found that the flies' feet are wonderfully adapted to carrying Typhoid Bacteria, which partly accounts for the spreading of this disease during the warm months. If a fly, whose feet contained Typhoid Bacteria, would light on milk these would multiply so rapidly that within twenty-four hours there would be one million in a drop of milk. This goes to show that this bacteria will grow faster in milk than in any other field. Milk should be always kept from flies, whether it be in the stable, barn or kitchen. Unsanitary milk is always dangerous in every way.

### FRESH AIR

It was intended that we make use of plenty of fresh air, because there is more of this substance than any other. The farmer, as well as other people, has more fresh air and more cold water than most anything else, and it is a fact that they use less of these than they should. If we make use of these properly it will prevent many diseases that affect the human family. If people wish to have good health, they must open up their houses to air and sunshine. All curtains, carpets, pictures, and unnecessary furniture should not be used in the home. It has only been in the last few years that the people took proper notice of ventilation in their homes.

In making a thorough study of this question in the last few years, I find that in the western part of our State, where soft coal is largely used, places that are considered smoky cities, the homes are best ventilated and they make use of more fresh air in their bedrooms. In the eastern part of the State, places where they burn hard coal they do not seem to have the same regard for ventilation, either in hotels or private homes. The people who live in the farm house will never enjoy good health until they let more air into their bedrooms. Those that are sleeping in closed bedrooms should begin immediately by raising all the windows in the bedrooms one inch each night until every available space that will admit air is thrown wide open. I absolutely know for a fact, under many trials, that people who have had poor health all their lives have been restored to perfect health by following this simple and easy method.

Pneumonia is a germ disease caused by a living organism. It is contagious and prevails largely in the winter months, at a time when people commence to close their bedrooms. This germ flourishes most in a cold bedroom with poor ventilation. Adinoids, which is a common disease now among the young people, is caused largely by sleeping in rooms that are poorly ventilated. It is said that this disease can be cured without an operation by sleeping in the open air, for a period of six months. Another effective way of making proper ventilation is to leave the window screens in all winter. By tacking cheese cloth over the screen, it will prevent all unnecessary drafts, at the same time admitting the free circulation of oxygen into the room.

#### BATHING

One of the most important questions confronting the people who have homes in the country where there are no proper conveniences, is the question of bathing. I have always advocated the use of cold water, especially to country people, not because it is more convenient, but it is healthier. The Greeks have taught us this question centuries before our country civilization existed. There is no question that if our country people would take cold baths, sleep in properly ventilated bedrooms, they would all be in more perfect health. It is not necessary always to have a bathroom. Bathing can be effectually done with a large sponge. This should always be followed by a brisk rubbing with a coarse towel. Men that work hard on a farm and in the fields, should never sleep with the same shirt. This is too frequently done in many places in our State. The body, through the day, throws out a great deal of impurities. These crystallize on the shirt in the form of salts. At night the body reabsorbs this poison. This may produce such common diseases as rheumatism, stiff joints and back, and many other diseases that bring on premature old age. This is often blamed on hard work, when, in reality, it is due to disregarding the laws of personal hygiene.

**THE CHAIRMAN:** Gentlemen, you have heard this report; what is your will?

**MR. HEILMAN:** I would like to ask Dr. Beck whether he has ever tried the use of acid phosphate in preventing the breeding of flies in the stable?

**DR. BECK:** No, sir, I never tried that, but no doubt it would work.

**MR. HEILMAN:** Acid phosphate, I understand, is the only thing that will prevent it; the floats or land plaster will not prevent the breeding of flies, but acid phosphate. If you use a ton and a half to every thousand pounds of animal manure, it will absolutely prevent the breeding of flies.

**MR. COWAN:** I have been trying that for several years around the stable but have not had any occasion to try it around the house. We don't know what a house fly is. If one makes an effort to come in the house, my wife either kills him or sends someone else to do

it. But by using acid phosphate around the farm, there is not much danger of breeding flies.

It was moved and carried that Dr. Beck's report be accepted.

**SECRETARY CRITCHFIELD:** I would suggest that it would be in order to have the report of Dr. Dixon just following the excellent paper we have heard from Dr. Beck, and I know it would be entirely satisfactory to Prof. Kellogg.

**THE CHAIRMAN:** If Dr. Dixon is present, we will hear his address now.

Dr. Dixon spoke as follows:

### THE WATERS OF PENNSYLVANIA

By DR. SAMUEL G. DIXON, *Commissioner of Health*

To-day I want to have an elementary heart-to-heart talk with you about water and the water courses of Pennsylvania.

We can live longer without food than we can without water. It makes up 66 per cent. of our bodies. In its purity as Nature causes it to fall from the atmosphere, it is the most healthful of all liquids and the only one which will satisfy the thirst. Without it our blood would not circulate through the vessels of our anatomy. The infant in embryo is fed by blood of which water is such an important part. It must be fed by blood which is clean and pure in all its parts in order to build up a healthy youngster.

Milk, upon which the baby depends for its existence after birth, is made up of 90 per cent. water. Milk is the most satisfying food known for man, yet I have just said 90 parts out of every 100 parts of it are water.

Water is used more than any known liquid. Today, however, we want only to consider it in connection with the health of man and with the health of animals and vegetables which are used directly as food for man. Water is used more largely than any other liquid for drinking. It is used for preparing food for the consumption of man and animals, for the washing of all the utensils used in the handling, storing and transporting of our food stuffs. It is used to irrigate the soil in which is grown the vegetables that we eat without cooking. It is a principal component of all nonalcoholic drinks and liquid medicines. It is a necessity in our homes, in cars for transportation of the public and in a thousand and one other places, and other ways.

With what little I have said about this great commodity which covers the greater part of the globe, you can realize the importance of Pennsylvania's efforts to keep her waters pure. When our General Assembly of the Session of 1905 passed the Purity of Waters' Act and placed the execution of the work upon the Department of Health, the work was organized by January 1, 1906. So by January 1, 1907, our statistics of 1906 gave us the number of deaths from typhoid

fever alone to be 3,917. No other acute disease occasioned so many fatalities, with the exception of pneumonia. These figures meant, that out of 100,000 of our population, 56 people died that year from this water borne disease. In that year there must have been about 40,000 cases of typhoid fever in Pennsylvania, nearly all resulting from infected water or from milk which had largely become poisoned by polluted water finding its way into it in one way or another. I want you to try to imagine the suffering of the bodies and souls of our people from this great plague. Typhoid fever gave the doctors more work to do than any other disease, and almost as much as all other acute diseases put together.

Independent of the suffering and sorrow of our people, the loss by death and the loss of time of those afflicted was causing a loss to Pennsylvania in money value of fifteen millions of dollars a year, not including the money paid by the people for the services of doctors and nurses and for medicines and undertakers. Such a condition was a blot on the escutcheon of this Commonwealth. There was no excuse for us after God had blessed us with the riches of our mineral deposits and farm lands and with the greatest streams of pure water of any of the states in the Union. We were censurable. We would not have defiled our food stuffs or food prepared for others to eat, yet because these sparkling, beautiful, pure streams were continually flowing to the sea, we began to use them as carriers for our filth and refuse in order that it might be carried away from our homes. We did not seem to think of our neighbors down stream who depended upon the water for domestic purposes and that this same water might be used for drinking purposes both by man and beast after we had so thoughtlessly defiled it.

This condition of affairs went on until the "beautiful river" (Schuylkill) has become a stinking sewer. The great Delaware is fast growing into a gigantic conduit for carrying sewage, while many of our small streams throughout the State are badly polluted and are guilty of distributing much sickness along their shores. In fact, they have carried great epidemics into our municipalities, leaving death and sorrow in their wakes. It is impossible to understand why we have all so long tolerated this death dealing habit. If we have a half-dozen deaths a year in our State from pellagra, the people are excited and almost ready to stampede. A reported case of small pox in a community usually causes considerable alarm.

Typhoid fever is caused by a micro-organism discovered in 1880 by Eberth. He first found them in the spleen and glands of the intestines and liver and kidneys from which they follow the natural discharges of the body. These little vegetable organisms are about  $1/125,000$  of an inch long. When they get from the intestinal tract or kidneys of a patient into our streams, I know from experience that they may travel fifty miles or more and produce fearful epidemics of typhoid fever in towns even that far down stream from their place of entry.

In Nanticoke we had an epidemic of about 445 cases with about 44 deaths. All this came from one case along the water shed about one-eighth of a mile from the stream from which water was taken to supply the borough. On the premises where this case occurred there was a small surface outhouse and a heavy rain washed some of the

contents of this surface closet into the stream from which the water company was taking the supply for Nanticoke. As soon as we discovered the cause of this epidemic, the little outhouse was removed and the place disinfected all the way to the stream. The reservoir and the water pipes were all disinfected, and as soon as the incubation period passed, the new cases fell off until the epidemic disappeared, but it was too late so far as the hundreds of cases already infected were concerned. The Department of Health notified the people of Berwick and Nescopeck at once, forty miles down stream from Nanticoke, using water from the river upon which Nanticoke is situated, that they should boil all their water. The people were indifferent to the Department's notice with the result that both of these towns had epidemics of typhoid about the time that I predicted such results if precautions were not observed. Our Department at that time was young and we have not yet educated the people. Now we find that the citizens of the State have learned to have confidence in us and are co-operating in our efforts to stamp out this deadly disease.

Anthrax is another disease which is carried by water. It prevails extensively in sheep and cattle in various parts of the world. It also occurs in man and is very deadly. This disease is also caused by a vegetable organism discovered by Daraine, a French physician, in 1850. It is about  $1/2000$  of an inch in length and is communicated to those who handle hides or wool. Pasture lands become infected with this organism and remain so for years. From these pastures, from slaughter houses, tanneries and places where dead animals are kept, streams are infected.

Tuberculosis is also produced by a vegetable organism which averages about  $1/125,000$  of an inch in length. This disease is widespread over the face of the earth and is killing thousands of the good people of this Commonwealth every year. These organisms also find their way into streams, both large and small, and in some waters may live for quite a while.

Not only do these death dealing germs I have been talking about get into the streams but they also find their way into the springs and wells from which water is used for drinking and washing our milk vesels. Unfortunate it is for all of us, and particularly those of us who are entrusted with the health of the eight millions of people in this State, that millions of these organisms may be present in a tumblerful of clear, sparkling water without our being able to see or taste them. Our natural instincts fail to give us warning though the tumbler may be as death dealing as the hemlock draught. Too many of our lay people may be likened to the Indians who said, "No see 'em, no believe 'em." If a foreign enemy landed on our shores and made an attack upon our lives it would not require much energy to arouse our people to arm themselves and go forth to battle with the invaders, yet I can assure you that it is often discouraging to the health officer, after he has almost exhausted his strength and his patience trying to convince the people that disease organisms are finding more victims every year than were found on the battlefields of the Civil War, to still find the public indifferent particularly when we know that many of the diseases can be overcome with the intelligent co-operation of the citizens of the State.

I have spoken of the necessity of keeping our waters pure for various reasons amongst them that impure water finds its way into milk, a delicate emulsion which nature intended should be fed from the mother to the offspring, without any exposure to air, water or anything that might introduce poisons or germs of disease. Civilized life, however, has broadened its use for food, and milk from animals, particularly from cows, has become one of the most valuable foods for man. Milk makes a good medium for disease germs to live in and multiply and therefore it must be handled with great care and intelligence.

FOOD EQUIVALENTS TO ONE QUART OF MILK  
AT EIGHT CENTS PER QUART

|                                 | Per cent. of protoids. | Per cent. of carbohydrates. | Per cent. of fats. | Caloric units. | Cost of quantity named. |
|---------------------------------|------------------------|-----------------------------|--------------------|----------------|-------------------------|
| Milk, .....                     | 3.3                    | 5.0                         | 4.0                | 654            | .08                     |
| ½ lb. lean round of beef, ..... | 20.9                   | .....                       | 10.6               | 626            | .17                     |
| 8 eggs, .....                   | 13.1                   | .....                       | 10.5               | 676            | .27                     |
| 2 lbs. potatoes, .....          | 1.9                    | 18.3                        | 0.1                | 770            | .10                     |
| 7 lbs. lettuce, .....           | 4.2                    | 6.3                         | 0.6                | 1,491          | .50                     |
| 4 lbs. cabbage, .....           | 1.4                    | 4.8                         | 0.2                | 458            | .08 to .10              |
| 2 lbs. salt codfish, .....      | 26.3                   | .....                       | 0.3                | 9.80           | .80                     |
| 2 lbs. fresh codfish, .....     | 11.6                   | .....                       | 3.5                | 708            | .45                     |
| 2 lbs. chicken, .....           | 21.9                   | .....                       | 8.9                | 1,890          | .50                     |
| 5 lbs. turnips, .....           | 0.9                    | 5.9                         | 0.1                | 600            | .15                     |
| 1-6 lb. butter, .....           | 1.0                    | .....                       | 85.0               | 537            | .08                     |
| 1-3 lb. wheat flour, .....      | 11.4                   | 74.8                        | 1.0                | 550            | .01                     |
| 1-3 lb. cheese, .....           | 25.9                   | 2.4                         | 33.7               | 650            | .10                     |

You can see by this table that milk does not command as high a price in the market in proportion to its food values as do other food stuffs. This apparent lack of proportion calls for an explanation and may be accounted for by the unstable and highly susceptible nature of the product. Milk is a liquid which is susceptible to thermal conditions. Under summer heat in this latitude it soon sours and loses its food value, and as I have already said, it is a good culture medium for germs of disease. If it becomes contaminated with typhoid germs from infected water or from dirty hands of persons coming in contact with or nursing those suffering from typhoid fever or from flies coming from an outhouse where non-disinfected dejecta has been deposited, it will carry the germs of typhoid fever along the milk route and will spread an epidemic of the disease. If scarlet fever, smallpox or any o'er communicable disease happens to be in the home with those handling the milk, those diseases may also be carried. If the milk is kept in dirty vessels or the dirt from cattle not properly cared for gets into it, chemical substances are produced which are extremely poisonous. Consumers therefore have become afraid of milk and try to find substitutes to take its place. Demand has a close relationship to the price an article will bring in the

market. From what I have said it must be evident to the dairy farmer that if he will study all things that tend to depreciate the value of milk, it is largely in his own power to raise or lower its market value. Keep the streams, wells and springs clean, keep the cattle clean, keep them in clean, well ventilated barns, give them outdoor exercise that their bodies may be free from disease, cleanse your milk utensils thoroughly, keep healthy helpers, keep disease away from your home or if it does come keep the milk away from the disease and every one who comes in contact with it. Disinfect all vessels you collect from your customers, or, better, use destrucible milk containers when you can get them at a low enough price. If you can convince the people that milk has been robbed of its dangers, the demand will become greater and you will receive more nearly its true food value. Pure water will help in bringing about this result. Raw milk is the most easily digested, but to be used raw, it must be pure.

What I have said about the relationship between pure water and the value of pure milk brings me back to the streams, to their past dirty condition and to their relationship to the farmer. The intestinal and kidney discharges can be kept out of the streams at a profit and at the same time thousands of cases of sickness and death from typhoid fever can be prevented. One day last week when I was trying, with many interruptions, to jot down some notes for this talk, I received the following letter:—

Dr. Samuel G. Dixon,  
Commissioner of Health,  
Harrisburg, Pa.

"Dear Mr. Dixon:—It pleases me much to learn that you are to make an address before the State Board of Agriculture, January 28th, on 'The Waters of Pennsylvania.'

"Last summer when I was up in Centre county, I heard of a case in which your Department had insisted on a farmer constructing a concrete base and sides to his barnyard manure pit. The tale the farmer tells is this:—'The State Board of Health fellows came up here and they made me fix things up, so that the drainage from the manure should not get into the stream. Well, I kicked like a steer but they made me do it. Now, do you know, that ever since I have been kicking myself because I did not do it long before, because the increased value of the manure has paid for the whole thing many times and to think I have been letting that stuff go to waste makes me mad.'

"Again, on the 10th of this month, I attended a meeting of the Schuylkill County Agricultural and Horticultural Society. One of the old farmers complained of the exactions of the Health Department. He said an official of your Department had visited his farm and gave him but thirty (30) days in which to do the work, i. e. preventing drainage from his barnyard from flowing into the stream. I told him he should have done it long before he was required to by the State.

"Dr. Van Slyke of New York, one of the foremost authorities on Fertilizers, etc., makes this statement in his recently issued work on the subject, 'The values of the loss to the farmer of the United

States through the waste of this liquid is \$70,000,000 annually, a sum equal to the value of some entire crops.'

"I hope you will handle this matter without gloves. Some of the farms I have visited are positively unsanitary."

This brings me to the value of the natural fertilizers which mean so much to the success of the farmer. By permitting them to be washed into the streams they are carried away, never to return to the soil from which they originally came, yet when they are carried into some public water supply, they may be returned to produce epidemics of typhoid fever where farmers serving milk may carry the germs of the disease back to the dairies in the milk bottles collected from their customers.

The manure from horses, cattle, sheep and hogs is rich in nitrogen and some phosphoric acid and potash, differing somewhat in proportion with the varieties of animals mentioned. Its value in dollars and cents varies, depending upon the way in which the animals are fed and upon the geographical situation of the farm. Near our large markets it brings good prices. What I want to impress upon you, however, is that the liquid which so often is permitted to run off into the streams, is generally worth at least three times as much as the dry manure, and if you permit the rains to dissolve out the nitrogen and carry it away, you will often find the drainage from your barnyard worth five times as much as what you have left to haul out on your fields. If a farmer is unable to haul the manure out every day or so, he can well afford the labor necessary to retain this valuable liquid. Such work will bring an immediate result and save money that would otherwise go for artificial fertilizers.

If you do not retain the natural liquids and those dissolved out by the rains, your crops will fall short or you will have to take the cold cash and purchase artificial fertilizers which do not take the place of good, well kept manure. You will not get the humus nor will you keep up the biological standard and general physical conditions of your soil. If you will keep the manure in water tight pits, well packed and moist, your expenses will come back to you tenfold and at the same time you will be your brother's keeper by preventing your sewage from getting into his water supply and making him sick with maybe one or another of many intestinal diseases. You can co-operate with the health authorities, make more out of your land and save others and yourselves much sickness, sorrow, yes, death.

Now I will show you a few pollutions of streams. This picture shows the spring on a mountainside in a non-inhabited water shed valley. That spring was found perfectly pure; it is considered one of the head waters of the State. That picture shows the water from this stream and others rushing down the side of the mountains still pure. This is pollution finding its way into the stream that nature had given us, so pure, so beneficial, so harmless, now becoming dangerous. Along a little tributary of the larger stream, here is another outhouse with its contents going directly into the stream. Now the only thing necessary there to bring about an epidemic of typhoid is to have a typhoid case discharged into the stream and have it carried down to some water intake. That is just a repetition of the same thing—put directly over a stream. There this whole stream passes

under an industry; the waste of the industry passes into the stream. Here is another example of the same thing, an industry passing its waste into this little stream and another outhouse built here. This is one outhouse where, in dry weather, it is comparatively harmless, but when it rains on this hill and the amount of surface water is great, it finds its way over this hill into a stream and causes an epidemic. Here is another stream quite pure until it gets to this point, until a privy is put here and the contents finds its way into this little stream. Here is a spring house such as is often put at the foot of hills. Up here is the outhouse and when it rains the contents of this outhouse will be found working itself downhill into this springhouse. Not only was that water used at times for drinking purposes at this one place, but it was also used to wash the milk cans. This is another example of the same kind. The privy was back here and the contents found its way down grade here into this spring house. This is one of the causes of great epidemics, we removed the outhouse and caused the place to be disinfected. That is the same thing, showing where it finds its way into the stream. This is a continuation of the same stream, showing how it spreads out and makes a filthy swamp, a great breeding place for mosquitoes, independent of being infected, and through which the cattle wade and get their teats infected. That had something to do with one of our largest epidemics of typhoid. It was one of the contributory causes. Down here was an outhouse. Water washed over here and came down over this wall. The clothes from the typhoid patients were washed in one of these buildings here and then that water went down the side gutter of this road into a stream just above a water intake. That is a dangerous stream winding its way along the side of the road, through a barnyard, subject to pollutions from tramps, etc., going along this road. That stream finds its way into a meadow, always a good place for the wading of cattle. That is the same thing, and cattle here are found in the summer time wading in the stream, which is very badly polluted. Here is where a barnyard has this water around it, and this farmer has objected to saving the liquid manure and has knocked a hole in the wall for it to discharge into this stream. This is a picture showing pig pens back here and the contents of the barnyard, etc. are all washed into this stream; that caused an epidemic. Here is a good example of railroad pollution; here is an open trestle work over which passenger trains are passing frequently, and they are as apt to have the toilet rooms used in going over this little stream as at any other point on the road, and typhoid passengers are travelling in the early stages of typhoid to get home and deposit the contents of the closet in the stream. That was the cause of the great epidemic at Scranton. This is a common habit, throwing animals into streams used for drinking purposes. Here is a place where this industry empties all its toilet rooms directly into the stream. When the water was high, the fecal matter dropped directly into the stream and at other times washed in, and caused an epidemic. Here is a barnyard and outhouses emptying directly into the stream. This is coming to a town and here are overhanging privies, as used to be the case all through the Commonwealth, polluting the streams. One of these streams that you have been following comes down a considerable distance above here and here is the water works taking the

water from the stream that is polluted, as I have just demonstrated to you. You can see how the great blessing that we had in this State, one of the most richly watered states in the Union, has become a curse to us through our own filthy habits, and I do hope that you will go away from here and be missionaries to try and help us to get these pollutions out of our streams as rapidly as we can. We have already cut typhoid fever down sixty-seven per cent. in the State, and there is no reason why it should not almost be wiped out. Thank you very much.

The CHAIRMAN: This report will be filed. We will next have the report of Prof. Kellogg.

The report is as follows:

### REPORT OF MICROSCOPIST AND HYGIENIST

By PROF. JAMES W. KELLOGG

The report submitted at the last meeting of the State Board of Agriculture showed, in a brief manner, the method employed in examining various foods or feeding materials by the aid of the microscope. The work accomplished during the past year, as consulting Specialist for the Board, has been devoted for the most part to the examination of the samples which have been sent to the laboratory for foreign substances or materials which might not have value for feeding purposes. We have been keeping a "microscopic eye" on these products in order to separate the good from the bad and thus keep our markets free from feeds which are worthless or which might contain harmful materials or have little nourishment.

A number of samples of feeding stuffs have been examined where it was thought that illness or death of livestock had resulted from feeding these feeds. In nearly every case nothing could be detected, or any mineral poisons found, which would cause illness or death. One sample, however, was in a badly decomposed and mouldy condition, and the feed represented by this sample did, no doubt, cause the death of several horses, as claimed. This feed was absolutely unfit for feeding purposes and the parties interested were so advised. Feeds which are in any way damaged by dampness caused by improper housing, or which are at all mouldy or decomposed, should, not, under any circumstances, be fed to horses and mules. We are advised that these animals are susceptible to illness and death, if perchance they should eat such feed and were not prevented from eating the same by their own instinct. It would not be safe either to feed such products to dairy cows.

It is more often true that many cases of reported sickness or death of livestock is due to improper feeding rather than to the feed itself which is suspected of causing the trouble. In several such cases which we have investigated, and where nothing harmful could be found in the feed used, it was discovered that the ration was improperly balanced or not enough roughage was used. Postmortem

examinations have shown that impaction had taken place in these cases referred to, thus causing the death of the animals, which was directly due to not enough roughage or lightening material being used. In one case where a particularly dry stock feed had been fed, impaction had taken place, where if the proper amount of water had been given, trouble, no doubt, would have been avoided. Some of these problems are rather those for a veterinarian to decide upon, however, these cases are brought to your attention at this time as your Specialist has been called upon to examine the suspected feeds. Care should be used in feeding concentrated mixtures and dry feeds, and enough green fodder or roughage and water should be used and the ration properly balanced.

If illness or death of any of your livestock occurs, a competent veterinarian should at once be consulted. Sometimes an experienced stock feeder can give advice, if all the information is at hand. If the trouble, after investigation, is laid to the door of any feeding stuffs, mixed feed or ration, the matter should be at once reported and we will be glad to make an examination of the suspected products. Arrangements have been made with the State Livestock Sanitary Board, in cases where illness or death is believed to have resulted from a certain feed, whereby an actual feeding test can be made in an attempt to locate the cause of the trouble. In such feeding tests it will be necessary to furnish the Department with enough of the feed, or ration, used to feed an animal two or three days. The feed will be sent to the Veterinary Hospital in Philadelphia and tried out upon some animal which is kept for this purpose and the results reported as soon as possible. We are ready at all times and glad to co-operate in investigating problems of this nature with which many members of this Board are confronted.

The Department has recently inaugurated a new line of work which it seems proper to call to your attention. At the last session of the Legislature a Pure Seed Law was enacted which became operative the first of the year. This law regulates the sale and sets the standards of purity for twenty-one kinds of seeds. It provides, in addition to obtaining official samples, for the testing for purity of samples sent to the laboratory by any one residing in the State. The fee charged is twenty-five cents per sample and the amount of each sample sent in should be from two to four ounces.

In order to carry out the provisions of the Seed Law, we have, therefore, fully equipped our laboratory with the necessary apparatus and are now engaged in the testing for purity of all samples which are received. Our Assistant, Mr. Howard E. Gensler, has been delegated as Seed Analyst, and we feel is in a position to carry out the tests in a thorough manner. He spent several weeks in the Seed Laboratory in the U. S. Department of Agriculture, at Washington, studying their methods. We trust you gentlemen will avail yourselves of this opportunity to have samples of seeds tested whenever any doubt arises as to the standards of purity being reached as set forth in the law. It is felt that this law will be of great benefit to all those purchasing and using the various kinds of seeds. No provision has been made for the testing of seeds for germination, and while this information is of real value, it is recognized by those conversant with this line of work that an attempt to inaugurate germina-

tion standards at the time of the passage of this Act would not be justified, for the reason that not enough work has been done in making germination tests to establish any standards.

In order that the information may be available and included in this report, the standards of purity for the different kinds of seeds named in the Act are presented herewith, as follows:

**STANDARD OF 97% PURE**

Medium Red Clover, Mammoth Red Clover, Crimson Clover, Alfalfa, Timothy Grass, Barley, Spelt, Wheat, Buckwheat, Oats, Rye.

**STANDARD OF 95% PURE**

Perennial Rye Grass, Alsike Clover, German Millet, Hungarian Millet.

**STANDARD OF 90% PURE**

White Clover.

**STANDARD OF 85% PURE**

Red Top Grass (solid or hulled).

**STANDARD OF 75% PURE**

Canadian Blue Grass, Orchard Grass, Kentucky Blue Grass, Red Top (unhulled).

The CHAIRMAN: You have heard the report; what is the will of the Board?

Motion was adopted that the report be accepted and filed.

The CHAIRMAN: We will next have the report of the Committee on Fruit culture, by Mr. A. I. Weidner.

This report is as follows:

### REPORT OF STANDING COMMITTEE ON FRUIT AND FRUIT CULTURE

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By A. I. WEIDNER, *Arendtsville, Pa.*

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As Chairman of your Committee on Fruit and Fruit Culture, I submit the following: The past year has been one that will be placed on record, especially in the eastern part of Pennsylvania, as a bright spot in the history of the fruit grower of this section. Ever since the appearance of the San Jose scale louse, the orchardist has had a difficult task on hand both in labor and expense to hold it in check, and with all the effort that was put forth the loss was great in injury to trees and damage to fruit. During the early part of the season of 1913, fruit growers were keeping a lookout for the scale louse but none appeared, and then they began to consult with one another to know what had gone with the enemy. Some of the growers concluded that the late cold weather that came after trees were out in

leaf froze the young that were moving and had not fixed for their permanent home; the parent scale was also supposed to be injured at a time when it was not prepared for the late freeze. Later on it was discovered that a number of different parasites that had been working for several years on the scale were more numerous than usual, and it is now generally thought that these held the enemy in check during the summer. While there was no apparent injury to trees or fruit the past season, it is a fact that there are enough scale left to cause a re-infection of this section. While the crop was being harvested in many orchards a few specimens were found on a few of the apples, indicating that there was seed enough remaining that it will be necessary for the grower to continue to spray for the scale louse. While it may seem not worth while to spray for the few scale it is well known that the same spraying will also destroy fungus if the lime sulphur preparation is used and it is therefore desirable to continue the spraying.

The apple crop, in the Adams county fruit belt especially, has been very satisfactory. While some of the orchards were injured at time of bloom and a little later when the May freeze came, yet the more favorably located orchards produced a good crop, and where properly sprayed fine and perfect fruit was harvested. The yield being greater this year on account of the many young orchards coming into bearing and the higher prices being paid makes this the banner year in the history of Adams county's fruit production. During past several years thousands of trees have been planted in Adams county alone. This year's fine crop and good prices have caused many of the growers to further extend their planting. Much fruit land has exchanged hands, and extensive planting will be continued in the Spring. The data for 1913 has not been fully ascertained, but will be about the same as that of 1911, which was 177,595 barrels, or 1184 carloads shipped from Adams county. The average price the past season was about three dollars per barrel. Elsewhere in the State the apple crop was not so large.

Peaches are not grown so extensively in Pennsylvania as apples. But where orchards are on elevated ground with good air drainage and with good culture and well sprayed they produced a reasonable good crop which brought good prices in the markets this year, and when properly grown and graded will always find buyers that are willing to pay a good price for them. Cherries were not a full crop owing to cold weather at blooming time and a little later some of the more hardy varieties produced about one half crop and brought good prices. Many growers who have soil and conditions that are favorable to the growing of the cherry are planting more heavily and will endeavor to supply the increasing demand. This, no doubt, will be a profitable venture. Quince crop was good and more perfect in specimens than usual and also sold well. Strawberries were not plentiful. Unfavorable weather at blossoming season injured many of the blossoms so they did not mature. Where beds were protected and sheltered, fairly good crops were produced and sold readily. Raspberries and blackberries were a shy crop, the demand being greater than the supply.

In conclusion, it has been admitted that as fine Pome fruit can be grown in Pennsylvania and of better flavor than that grown in

the western part of the United States. In view of these facts and our nearness to the best markets in the world, Pennsylvania has a bright prospect for the future in fruit culture.

The CHAIRMAN: Gentlemen, you have heard the report; what is to be done with it?

It was moved and carried that the report be received and filed.

The CHAIRMAN: We will next have the report on Dairy and Dairy Products, by Mr. W. E. Perham.

The following report was read:

## REPORT OF COMMITTEE ON DAIRY AND DAIRY PRODUCTS

By W. E. PERHAM, *Varden, Pa.*

The past few years have seen a great change in the dairy business of this State—that is, instead of producing butter and cheese, we furnish now much more largely whole milk for city consumption. In some counties nearly all the creameries have become milk shipping stations. On the farm, instead of the raising of pigs and young cattle, you find only cows. The high price of veal calves tempts many farmers to sell so they grow not enough young cattle to keep up their own herds. Of the 20,000,000 cows in the United States, Pennsylvania claims over 1,000,000 of them. While statistics do not show as many cows in the country now as there were five or six years ago, their value has increased fully 30 per cent. The increased value of our dairy cows and the high cost of feed and of labor bring home to the farmer the necessity of getting rid of his unprofitable cows and keeping only those which return him a profit. He must do this or step down and out of the dairy business. The dairy farmers are waking up to this need, and are encouraged to keep accurate records of their cows. As a result of this, the breeding of herds steadily improves, better feeding methods are adopted, and the production of the cows are increased, and larger profits obtained.

Our Department of Agriculture is doing good work in assisting in the organization of cow testing associations. There are now several hundred of these associations in the United States, but I am sorry to say that Pennsylvania as yet, can boast of but few of them. If Denmark could double her dairy products in a few years as a result of her cow testing associations, certainly we can do as well if we go about it in as thorough a manner as did the Danes. While dairying is looked upon as drudgery by many, it is, nevertheless, the surest of any line a farmer can take up. His corn or potatoes, or his wheat may fail him, but his dairy rarely fails, and he can pretty surely figure out a year ahead about what his returns from his dairy will be.

Another cause of the reliability of dairying is the efficiency of the dairy cow in converting the crops of the field into a concentrated merchantable form. The past 15 or 20 years have seen great change in the mode of dairying and in the price of dairy products. I have seen milk delivered through the flush of the season at the shipping state for the New York market at  $1\frac{1}{4}$ c per quart, while last season

from the same station and to the same market it did not get below 3c a quart, delivered at the railroad. Still we hear more about the dairy not paying than we did back when the prices were only about one-half what they are at present. 1913 was a banner year for prices on butter and cheese. The average price of fancy creamery butter for the year was 32.28c per pound, an increase of nearly  $\frac{3}{4}$ c over 1912 and  $4\frac{1}{2}$ c over 1911. Milk in many places did not go below 3c at the railroad station. Many of the New York milk dealers take the Bordens as their standard for prices. Their price for this month, January, is 1.75 per 100 lbs. at the shipping station for C grade milk testing less than  $\frac{2}{3}$  per cent. fat. For B grade they got 10c per 100 more, and if it tests  $\frac{2}{3}$  or better, an additional 10c is added, and in addition to this they have been giving a bonus of 11c per 100 making a total of \$2.06 per 100 for the farmer who is furnishing a good grade of milk. The butter market the past season has been unusual in one respect. Extras being quoted several cents above firsts. In former years these quotations run from  $\frac{1}{4}$ c to 1c apart, but this season they have been running from 2c to 4c apart, showing a great scarcity of extras, and keeping down the price of common goods to a point where the storage men are likely to loose on storage butter, although its quality may rank as firsts. This is a point our butter makers should note. Often a difference of two or three points in the scoring making fully that much difference in cents per pound.

There is no question but that with the increase in the price of dairy products has come an increase in the cost of feeding, but we are fortunate that the latter has not come without the former. Hoard's Dairyman says, it requires about 750 pounds of digestible nutrients to produce 1,000 pounds of milk. Calculating the amount of milk than can be produced from this basis and ignoring the adaptability of the feeds to produce milk, it will be found that an acre of timothy will grow enough material to produce 1,920 pounds of milk; an acre of corn, 4,600 pounds; an acre of oats, 1,500 pounds, and an acre of alfalfa, 5,300 pounds. While the prices of feed soar, the silo comes in as a great saver of money to the farmer. It is looked upon as a necessity and many new ones are going up each year. With all, the dairy business is a great business, and when it is managed on a business like basis, it will return a good profit, and the dairy outlook never was brighter than it is at the present time.

**The CHAIRMAN:** Gentlemen, you have heard the report; what is the will of the Board?

It was moved and carried that the report be adopted and filed.

**The CHAIRMAN:** Next is an address on "Work Done by the Dairy and Food Bureau since 1907," by Hon. James Foust, Dairy and Food Commissioner.

**SECRETARY CRITCHFIELD:** Mr. Chairman, Mr. Foust is engaged in cases that are now being tried in the Dauphin County Court and that will explain the reason why he is not here. I understand that Dr. Kalbfus, Secretary of the Game Commission, is here, and if he is in the house, we would be glad to hear from him.

Dr. Kalbfus then delivered the following address:

## VALUE OF BIRD PROTECTION

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By DR. JOSEPH KALBFUS, *Secretary Game Commission*

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Mr. Chairman, Ladies and Gentlemen: I did not expect to talk until Friday, but I am glad of this opportunity because I have another engagement. The subject is one dear to my heart and one that, to my mind, means more to everyone here present than do horses or cows, or sheep, or swine, or fruit, or fertilizer, or many another thing to which far greater attention has been given up to this hour.

I do not propose to waste time in an introductory except to say that Primeval man lived by the chase alone and was undoubtedly a savage, and that when man began to cultivate the soil, the first step along the road to civilization was taken. The successful cultivation of the soil is not only the foundation upon which the welfare of this nation is built, but is also the key, binding the people of each nation and the world together in their every effort, and as it has been in the past, as it is today, so it must be until men shall be no more. Those methods through which the greatest return can be secured to labor expended upon the farm, are the methods today, for our consideration, each method being an additional step toward higher civilization, and I take it that anything that tends to increase the yield of the soil, is well worthy of consideration. In the limited time given me in which to address you, it will be impossible to consider my subject in any but a casual way. The field is so great, that I might talk for hours, and then only "touch the high places." Still, I hope that I may say something that will cause someone here present to see the birds around them in a new light and to study more deeply the value of bird life, to him as an individual, to this State, and to this nation. I hope I may say something that will be remembered long after you shall have forgotten me, and that will lead you to *do something* for the birds, your best friends.

In the attempt to impress you I propose to limit my remarks to the saying of *startling things*, which things, no difference how impossible or unreal they may at first appear to you, are founded on truth, and mean something to every soul in this audience, and to those who may follow you through coming ages. No one will dispute the assertion that the tax levied upon the labor of the farmer through the ravages of insects is today one of the greatest claims he is compelled to meet, and the possibility of increase in this direction is beyond even the imagination of ordinary men. Those who have given this subject consideration from a scientific standpoint tell us, there are more than one million species of insects upon this earth, that the number of insect species is greater by far, than the number of species of all other living creatures combined, and the name of each species is legion, and while this is somewhat startling, what scientists say regarding the *possible* increase of species and the *actual* increase of the number of each species and the *capacity* of each individual to destroy vegetation is simply appalling.

In the consideration of possibilities in this direction I shall touch upon the high places, leaving you the intervening lands to explore

at your leisure. Professor Surface tells me this world, in his opinion, would not be inhabitable by men in a very few years if insect life was not curbed in some way. He understands the possible danger and is working day and night to help stay the march of those untold myriads whose only purpose is to destroy, and whose success mean desolation to this fair land, famine, pestilence and death. Prof. Forbush, Ornithologist of the State Board of Agriculture of Massachusetts, in a work recently published, among other things says:

"Many caterpillars daily eat twice their weight of leaves, which is as if an ox were to devour every 24 hours three-fourths of a ton of grass." He says, "a certain *flesh-eating* larvae will consume in 24 hours, 200 times its original weight, a parallel with which in the human race would be, an infant consuming, in the first day of its existence, 1,500 pounds of food." He tells us "There are *vegetable feeders*, caterpillars, which during their progress to maturity within 30 days, increase in size 10,000 times. To equal this remarkable growth a man at maturity would weigh 40 tons."

He tells us that Dr. Lintmer, late State Entomologist of New York, saw aphids upon a small cherry tree, which was only one tree in a row of trees in an orchard containing many rows. He counted the lice on certain of the leaves of this tree, counted the leaves of certain branches, and the number of branches on the tree, and estimated that there were at least twelve million (12,000,000) plant lice in that one tree, and to give an idea of what they meant said, "that to count this number, a man speaking as rapidly as possible, and putting in ten hours a day, would require eleven months to complete the enumeration." Think of the number of aphids in that orchard. Regarding the increase of insects in numbers he says, "It is possible for a single female potato bug, to be the ancestor of sixty million (60,000,000) of its kind in one season." Prof. Forbush, again quoting Dr. Lintmer regarding the possible increase of the hop vine aphid, says:

"Prof. Riley discovered thirteen generations of this species in a single season, and, there being no losses, estimated it was possible for one pair of these insects, starting with 100 as the number of the first hatching, to be the ancestors of ten sextillion of their kind in the thirteenth generation."

This means 40,000 of these insects to every square foot of land that is above water in the world; it means that counting at the rate of two per second continuously it will take men and the children of men almost one hundred and sixty trillion years to count ten sextillion. Ten sextillion in figures is apparently beyond the ordinary comprehension of men, and Prof. Forbush uses time and distance to illustrate its vast meaning. He says:

"If these insects were placed in single file ten to the inch, they would extend from the earth to the sun, a distance traveled by light in eight minutes—light is said

to travel at the rate of 160,000 miles per second—and from there to the nearest fixed star, a distance traveled by light in six years, and from there on to the most distant star that is visible through the strongest telescope known to man, and from there still onward into unknown space, on and still onward, to a point from which it would require light 2,500 years to reach the earth."

That is somewhat startling, but there surely must be some fire where there is smoke. There must be some few insects in the United States, for it is estimated by the Agricultural Department at Washington, that through the ravages of insects, an annual loss to agriculture in the United States is incurred, equaling, if not exceeding, 10 per cent. of the entire production. Prof. Forbush estimates the loss from this cause in Massachusetts at 15 per cent. A loss of but 10 per cent. means a loss of more than one billion dollars (\$1,000,000,000) to the farmers of the United States last year, and this loss is entirely outside of the cost of machinery, poisons, labor, etc., used in attempting to curb these pests, and is exclusive of the loss incurred because of rabbits, mice and other rodents. And what does this mean to us? It is claimed we have 600 colleges and universities in the United States, the value of which, including buildings, estimated at \$260,000,000, and endowments, estimated at \$219,000,000 is \$479,000,000. The loss to agriculture in the United States through the ravages of insects in a single year would not only replace these buildings and their endowments were they from any cause destroyed, but would leave unexpended a balance of more than \$500,000,000, an amount sufficient in itself to create and endow in like amount 600 new colleges and universities. It is estimated that we have 20,000,000 school children in the United States, and there is no doubt whatever but that the cost of educating these children is one of the heaviest demands made upon the reserve funds of this nation. The loss to agriculture through the ravages of insects in a single year would supply a fund sufficient to meet these demands for many years.

Our Representatives at Washington are spending much time in considering whether or not one battleship or two shall be built annually by the United States. The cost of building a battleship is about eight million dollars (\$8,000,000), and the loss to agriculture because of insects in a single year would build annually one hundred battleships, and then some.

The greatest of all engineering feats in the history of civilization—the Panama Canal—costs about \$400,000,000, and that we may fully understand the magnitude of this undertaking let me say, the excavation made in this work would mean a ditch 55 feet wide and 10 feet deep extending from New York to San Francisco. The dirt excavated, if piled in shape equal to the Chinese wall, would create an embankment 2,500 miles in length. The Chinese wall is about 1,500 miles long. The material excavated in this undertaking if placed in forms equal in every way to the pyramids of Egypt, would create sixty (60) such pyramids, that placed side by side, would extend more than 9 miles. The pyramids of Egypt, as you know, are

three in number, and the work of their construction is considered to be one of the wonders of the world. The loss to agriculture annually from the ravages of insects in the United States, is more than double the cost of the stupendous work done in creating this canal.

I might mention the loss incurred through the Chicago fire, or the loss of life and dollars through the earthquake at San Francisco, or the tidal wave at Galveston, or the loss of the Titanic, each of which occurrences in itself, caused the great heart of the world to stand still in sympathetic fear, and brought into immediate action every energy of those in interest, to as quickly as possible remedy the harm done and to prevent, if possible, its recurrence. Only a year or so ago the farmers of this country, especially those residing in states along our northern boundary, were shocked, as never before, by the simple mention of possible harm that might come to them through a new political proposition known as "Reciprocity." Men abandoned the tenets of their fathers and severed lifelong political affiliations, because of what they feared might happen, under the proposed regulations. Yet no one of these occurrences singly, of all of them joined together, begin to measure either in the sacrifice of human life or financially with the possibilities of insect destruction and consequent famine.

Yet in the face of these possibilities, we sit with folded hands and do nothing; or worse, we ridicule and laugh at the one who does try to defend himself, through the use of improved methods. But, you are already asking how it is if what I have said to be partly true, that we can live upon this earth at all, and the answer comes, because of disease, climatic changes, starvation, poisons, and the living enemies of insects, including birds, each of which wield a mighty influence in preventing undue insect increase and jointly bring the results we see, and the birds are a great factor in this direction.

Those who have paid special attention to the feeding of birds tell us that the great majority of young birds while in the nest are fed exclusively upon insects and that each young bird in the nest is capable of consuming daily an amount of animal food in the form of insects, equal to, if not exceeding, its own weight. This means but little when the food of one bird is considered, but in the aggregate means much. Say that we have but one nest of robins to the acre in Pennsylvania, each nest containing four birds, and each bird weighing but one ounce, only four ounces to the acre, yet it will at this rate require 3,600 tons of insects to feed the birds of Pennsylvania for one single day, for we have in this State in round numbers 28,800,000 acres, and this is entirely outside the quantity of insects consumed by the old birds during the same time. If you will only give consideration to their work and remember that they are put here, in the great majority of cases, to help you, I know you will be kind to them. I have issued an appeal lately and sent it broadcast, to feed the birds. They are working for you all summer, all spring and all fall, and now, when the world is covered with snow, they come to you for a little help. It is only a little thing. Any one of you perhaps waste every day in smoke more than enough to keep the birds in your community for weeks—many of you, I didn't say all. Won't you do it?

I was up to New York some time ago and heard of an old lady that had died and was about to be buried. Way in the background was one of the family servitors, an old lady who felt she was out of place in that gathering, perhaps, she was not of the religious persuasion of the dead, but somebody saw her and asked her if she wouldn't like to see the face of her departed friend before they closed the coffin. Walking forward with bowed head she stood at the bier, and there remembering the many kindnessess that came to her from that departed one, she stooped, and with her forefinger made the sign of the great Church to which she belonged on the forehead of that still, cold form, a sign that she had been taught from childhood was necessary to carry the soul of that departed one across the "valley of dark shadows." Nobody there she knew, perhaps, but she had the moral courage to voice her convictions in the face of all the people. I hope I may say something here that will lead you to appreciate the value of birds and cause you to do something for them wherever they may be and wherever you may be.

One of the greatest wrongs—there are a few ladies here but none of them have aigrettes on so I am going to talk straight. One of the greatest wrongs done to this nation and this world is in the murder of our birds for trade, for profit, and especially the millinery trade. The aigrettes that they wear, as they do, if they only knew where it came from and how it was taken, I am sure would not be worn. I have been brought in connection with those who are interested in this work, and I have seen the affidavits from those who saw the real facts, and every one of these plumes, to be of value, must be torn from the warm, quivering body of a freshly murdered bird, otherwise it is without value. The little birds are left to starve in the nests. The old ones have started out for food in the morning, utterly oblivious to any danger in their surroundings, bang,—bang, some plume hunter has gotten in his work, and the little ones are waiting for food.

Gentlemen and ladies, think of your own little ones at home. The rustle of a leaf, the breaking of a twig, causes the babies in the nest to rise in expectancy, only to settle back in disappointment, for the wings were those of a stranger to them. Think of your own little ones and have the moral courage, when you see these things, to say that the aigrette plume is a bloody badge of crime and nothing else and that it means no'ning else to you.

We hardly realize what the birds are doing. We have in this State some 345 different varieties of birds, 18 families and these families, wherever they are, are doing something for you that you cannot do for yourself and perhaps do not know the need of doing. I am going to simply use one illustration: A few years ago I had occasion to arrest a farmer right above town for killing twelve robins in his cabbage patch. Before the Alderman, he said: "I had a right to kill them, they were pulling up my cabbages just as they picked up red worms." I went up to this farm; I saw the robins among the plants. I got over the fence and crawled up and down the rows and examined them. There wasn't one single plant cut off above the ground; there wasn't a single root pulled out; but every one had been riddled below the ground line by the larvae of the click beetle, known as wire worms, and I took from two in one

hill forty odd in a hill and with a handful I went to the attorney and said: "Now what?" "Why," he said, "Doctor, he did not understand." That's the trouble. If we all understood; if we would all do our part to have those around us understand, it would not be necessary to talk upon that subject anywhere. But you don't understand, the people don't realize that this robin, the very minute he comes here, the harbinger of spring, the very minute he comes is beginning a work to benefit you, and the minute he gets in your cherry tree or in your strawberry patch, you soak him. Think of it! If the laborer is worthy of his hire, that bird is worthy.

I met a gentleman down here, the orchard man, Dr. Funk. Dr. Funk told me he was down on the robins. He said: "They pull out all the red worms there are in the whole country." And we went on to talk and we drove into his orchard, and I said, "Doctor, there's a robin's nest over in that tree." He didn't say anything and we drove along further and we saw another; and finally another, and I said, "Doctor, there's another robin's nest." "Well," said he, "I like the durned things anyhow." (Laughter). He was protecting the birds and giving them every chance, although he thought they were doing him harm. If you would only do that. They are doing a work for you and doing it in a particular way, in a special place, a work that no other bird tries to do, because each bird has a specialty.

Take the flicker, for instance; the specialty of the flicker is destroying ants. The ant is the great protector of the plant louse, the aphid, which I have tried to figure out to you would overwhelm this earth in a very limited time unless it was curbed. The flicker is the destroyer of ants and the ant is the protector of plant lice; he carries the egg of the plant louse below the frost line in the winter time and brings the young louse out in the spring and carries it from plant to plant getting in return honey dew just as you keep cows for milk. The ant keeps the aphid for profit just as you keep cows for profit. The flicker destroys untold thousands of ants, yet the minute somebody gets a chance, he soaks him, and the excuse we make in Pennsylvania is, that if we don't kill them they go South and the niggers will do it.

It is a shame to try to excuse the wrong we do because somebody else does it. A gentleman, talking to me in the hall about the work of birds, spoke of a blackbird destroying the nest of an oriole, and he said the law was all wrong because while it gave protection from the hunter, it gives the farmer a right to kill a blackbird that is found destroying property of any kind, which he could not do under the old law. The blackbird destroying the nest of the oriole could have been killed legally under the existing law, but two years ago it could not have been done.

What is the oriole doing? They and the cuckoo are the great destroyers of the hairy caterpillar, one of the most destructive insects against which we have to contend. Audubon said that a dissection of the stomach of an oriole would show that it was covered with hair. So it was; but it was not the growth of the stomach, it was the hair of the hairy caterpillar. Those two birds are doing work for you that you cannot do. If you get a splinter in your hand, there's trouble unless you get it out. If you got a hair in your stom-

ach, it causes trouble and it is so with any bird. A bird is created by God to do for you a work you cannot do for yourselves, and that means something to you everywhere, every day; it means something to every one of you and to every citizen of this Commonwealth.

Oh, I might go through the whole list of birds, but before I close I want to refer to hawks. We have 12 kinds of hawks in this State, 7 of which are protected because they are doing a work for you that the other birds do not do and could not do if they tried. I am going to give you one illustration: We had above Harrisburg here last summer a bird known as the red shoulder, the fellow that flies out here and hollers "Kee-yer—Kee-yer," and "there's a chicken hawk, get the gun out after him at once." I have an orchard, and going through that orchard last summer I saw on numbers of trees certain limbs which were almost covered with great big caterpillars. I looked at the tree and said, "I must clean that up tomorrow," and the next day I went down, and the droppings were there but the insects were gone. I dug around the roots to see if they had not crawled into some hole but couldn't find any, so I went after another tree and another, until finally I caught a pair of red shoulders in that tree with their four young ones; then I went to the books and found that they take pleasure in destroying caterpillars. So when you see a hawk, remember that there are only five varieties in the State that are injurious; some of them may kill a bird now and then or may occasionally take one of your chickens, but in the long run they do a work that is beneficial. And it is so with the owl. I saw a screech owl a few days ago that a farmer said had eaten a pigeon for him. This bird wasn't half as big as a pigeon. Examinations that have been made at Washington on the stomachs of 400 screech owls show that these birds live upon small rodents such as mice, and but seldom destroy birds of any kind. Still this gentleman cracked that owl over the head with a club and sold him for a quarter, leading me to believe that the quarter was what he was after rather than protection to his pigeons.

**MR. HUTCHISON:** How about the sparrow?

**DR. KALBFUS:** He is doing more harm than good. I want to say to you in this matter of feeding the birds, if you have ever been cold and hungry, you know what it means. I have been cold and been hungry. I happened to have been in the mountains of Colorado the winter after the Chicago fire, when the snow fell to the height of that lamp, and we hadn't anything to eat, and we cleaned up the bones we had picked for weeks before, cracked them and boiled them; took the skins off our cabin and boiled the water and drank it, and I don't know how I got out, but I know what starvation is, and when you go home, scatter a little grain, build a little house where the birds will use it, so that the blue bird, when he comes in the spring, has a place to go. You have cleaned everything out, cut down the old trees with the holes they used to occupy, so give them something new; it is only a little thing, and I beg you care for the birds and hope I have said something, in this limited time, that will lead you to do it, and I know you will all be better for having done it.

The CHAIRMAN: Gentlemen, you have heard this report; what is the will of the convention?

MR. HUTCHISON: I move that it be received and filed and published in the report.

Motion second and adopted.

SECRETARY CRITCHFIELD: This, Mr. Chairman, will mean that we will get the paper and the stenographer will combine that with the part that was taken extemporaneously. You know there was only a very small part of that discourse that was written.

The CHAIRMAN: That finishes up our program for today. A motion to adjourn, I suppose, is now in order.

Recess until 7.30 P. M.

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January 28, 1914, 7.30 P. M.

Vice-President George in the Chair.

The CHAIRMAN: First on the program this evening is the report of the Fertilizer Committee, through their Chairman, John H. Schultz.

Mr. Schultz submitted the following report:

#### REPORT OF COMMITTEE ON FERTILIZER

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By JOHN H. SCHULTZ, *Norristown, Pa.*

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This subject of Commercial Fertilizer is an important one for several reasons. In the first place, we all know that it is very difficult to get competent farm help, and in consequence of this difficulty a great many farmers all over this great Commonwealth are changing their method of farming. Instead of having their stables filled with cattle and feeding the crops raised on the farm, they sell their cattle and dispose of their crops in the nearby market. The result of this method is a depletion of the fertility of the soil unless the farmer resorts to a more liberal use of commercial fertilizer. We find that this is what the farmer is doing because the sales of commercial fertilizer are increasing about 10 per cent. from year to year.

We also know that the successful farmer who feeds his crop on the farm and returns the manure into the soil, is using more commercial fertilizer today than he did five years ago. For we live in an age of sharp competition and the farmer who makes a success of his occupation must raise maximum crops and this can only be done

by the intelligent use of commercial fertilizer. During the year 1913 there was sold in the State of Pennsylvania 330,321 tons of fertilizer, and the fertilizer material in the following forms:

|                             | Tonnage.        |
|-----------------------------|-----------------|
| Complete Fertilizers, ..... | 210,991         |
| Rock and Potash, .....      | 73,812          |
| Acid Phosphate, .....       | 23,104          |
| Ground Bone, .....          | 8,524           |
| Dissolved Bone, .....       | 559             |
| Tankage, .....              | 392             |
| Blood, .....                | 34              |
| Nitrate of Soda, .....      | 2,532           |
| Muriate of Potash, .....    | 2,780           |
| Sulphate of Potash, .....   | 224             |
| Kainit, .....               | 3,362           |
| Basic Slag, .....           | 2,322           |
| Natural Guano, .....        | 93              |
| Lime and Potash, .....      | 35              |
| Miscellaneous, .....        | 1,557           |
| <br>Total, .....            | <br>330,35 tons |

The total cost to the farmers was \$7,578,501.21. These values are based on the average price per ton to the consumer. During the year 1913, there were 1,773, brands of fertilizers and fertilizing materials registered with the Department of Agriculture. License fees amounting to \$30,930 were collected and turned into the State Treasury. During the same period the Department instituted 18 prosecutions for selling fertilizers that did not conform with the manufacturer's guarantee, recovering fines and costs amounting to \$445.94. It also instituted six prosecutions for the sale of fertilizers without the manufacturer first registering same with the Department. Three of these cases had been terminated and fines amounting to \$75 have been collected and turned into the State Treasury. The other three cases are pending. The defendants having plead guilty, adjustment of the cases being assured by the end of the present month. The total receipts for license fees, fines and costs collected by the Department of Agriculture were, \$31,450.90.

In looking over this report we cannot help but see that the farmers of Pennsylvania are expending a great deal of money in order to keep up the fertility of the soil. The question naturally arises, Is this great amount of money spent to the best advantage? As a fertilizer manufacturer, I know that it is not, because a great many farmers buy their fertilizer according to the price and do not consider the analysis. When a farmer buys a low priced fertilizer, in many instances, it is low grade, and he is obliged to buy two tons in order to get as much available plant food as he could buy in one ton of a high grade fertilizer, and has to pay extra freight and extra commission; and by the time he does that, he has had to pay five or six or seven dollars more than if he had bought high grade goods. When the farmer buys a commercial fertilizer, he is after plant food, and what he ought to do is to buy the highest grade goods

that the manufacturer makes, he not only buys it cheaper, but he buys plant food of superior quality and that is what the farmer wants. We make a fertilizer running, for instance, one half, seven and two, a fertilizer that no farmer should buy, a fertilizer that I never recommended, but we sell thousands of tons of it, and why? Because the farmer comes and he wants to pay, possibly \$12 or \$15 for a commercial fertilizer and no more. He can buy a fertilizer for that price, and the pitiable fact is that the farmer is not posted in nine times out of ten, take the country over. He does not realize what he is doing. In buying the low grade goods, he does not get the proper result and the consequence is that he condemns all fertilizer. If I am in the market for a fertilizer, I want just as much plant food crammed in that bag as the manufacturer can put in, and then I don't want to buy any more tons than I can help. Those same people who buy these low grade goods condemn the manufacturer for putting in a filler in making up the fertilizer.

We have another brand, six and three, just think of it, six of phosphoric acid and three of potash, and that is all it contains; but this is an honest confession; a fertilizer that should positively not be sold, but the manufacturer stands in the same position as the man who has a general country store, he has got all classes of customers and he wants to please them all, it is his business to do it. By the time the manufacturer has got the analysis on six and three, what has he got? Do you suppose he has a ton? No, far from it. The farmer would be better off if he'd send to him just what he has got, but then it wouldn't be a ton and the farmer wouldn't be satisfied. The manufacturer never made a cent on the filler; the only people that make money out of filler are the railroads, they get the freight. The manufacturer sells the analysis and not the weight.

I also feel that under the present law the farmers haven't got the proper protection when they buy their fertilizer, because the farmer cannot tell, by looking over the State Report, from where the different forms of so-called plant food come, and if the ammonia is derived from ground leather, it is practically useless as a crop producer. There are thousands of tons of ground leather sold to the farmers of Pennsylvania in the form of tankage. The manufacturer can use this material in his mixed fertilizer and when the State analyzes it, it will give the ammonia derived from ground leather as high a commercial value as that which is derived from animal tankage or blood. The ammonia can be bought in the form of leather scrap for less than one-half the price it costs in animal tankage, blood, or nitrate of soda.

I believe that the only way that the farmer can be protected is by having a fertilizer inspector whose duty it should be to go from factory to factory and see the fertilizer materials before it enters into the composition of complete fertilizer. This is especially important in regard to ammonia because it can be derived from so many different sources and it is a difficult matter for the chemist to determine from where the ammonia is derived in a complete fertilizer. Hence the easiest method of detecting the imposition which is practiced on the farmer is to see the material before it is manufactured into a complete fertilizer. The manufacturer who uses an objectionable material should be compelled to print it on the

bags. If a law would be put on our statutes whereby the above suggestion could be put into practice it would not only save the farmer of Pennsylvania millions of dollars but it would also stimulate the increased production of farm crops.

I could tell you of a plant where a friend of mine was this last week where he saw a thousand tons of ground leather in one pile; it runs all the way from 8 per cent. to 9 per cent. of ammonia. You can ask your State chemist of what value it is as a crop producer. If those manufacturers would take that leather and dissolve it with sulphuric acid, it would not be so serious, because ground leather dissolved is available plant food, no doubt, as far as the ammonia is concerned. You can take your old shoe, plow them under in your fields, plow them up again the next year and keep on plowing them down and up, and you can do that for ten years and the shoe is still there. If you take the original hide that that shoe is made from, it would soon rot and become plant food. The reason it does not rot in the form of leather is because the tanner that treated that hide put tannic acid in simply for the purpose of preserving it, and he does it most efficiently. Two years ago you had me on this same committee and I advised then the same remedy as that I have here tonight, and if you adopt it, it would reduce the cost of living.

The CHAIRMAN: Gentlemen, you have heard this report; if there are no objections, it will be received and placed on file. Next on the program is the report of the Committee on Wool and Textile Fibres, Mr. Sylvester Shaffer, Chairman.

Mr. Shaffer submitted the following report:

#### REPORT OF COMMITTEE ON WOOL AND TEXTILE FIBRES

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By SYLVESTER SHAFFER, *Newcastle, Pa.*

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If, a decade ago, one were asked to forecast the future of wool, mutton and lamb production in this country, he would have hesitated to go on record. But when an industry has reached the vast substantial status that characterizes the sheep business today, one feels safe in making the prediction that the future of this great industry is one of promise. Time was when the sheep were almost despised as an article of diet in this country. If one ordered mutton he could almost feel the wool in his teeth; but a great change has ensued.

Always a great industry, the mutton side was overshadowed by wool. As far back as 1867 there were 39,000,000 sheep in this country valued at \$2.50 per head, while today there are but slightly more than 50,000,000 valued at \$4.00 per head. The industry, according to government statistics, seems widely to have fluctuated. Stocks increased steadily. The maximum of production was reached in 1903, when there were 64,000,000, but so universal had been the use of fine wool rams that flocks had been bred almost without any regard whatever to mutton. Today with more than 13,000,000 less sheep

than in 1903, it is a safe estimate that there is 20 per cent. more mutton consumed. So much for ten years.

Go back by decades. No one thought of killing lambs for the table four to six months old. Wethers was the ordinary mutton offered. In 1890 a load of Western lambs was almost a curiosity on the Chicago market; but just as in cattle, the baby beef sprang into popularity and relegated the old steer to the rear, causing a radical change in feeding methods, so, when the fat, tender, juicy lamb appeared, older mutton was neglected and the industry underwent a change. Old mutton was not wanted; everyone demanded lamb. The flocks of England were drawn upon for rams that would combine both mutton and wool. The Shropshire was the favorite and his individuality is stamped on the flocks of the United States today to a greater extent than any other breed. Crossed on the merino ewe, he produced a dual-purpose lamb to a lesser extent; Oxfords, Hampshires and the white faced breeds. This year the proportion of native sheep to Westerns is decidedly smaller than a year ago; the farmers of Illinois, Wisconsin, Indiana and Michigan have simply flooded the market with useful ewes; and coming largely in the fall months, have had to sell for slaughter at low prices and go largely into cold storage. To see these ewes go to the packing house at just what the killers would consent to pay, gives concern to anyone who looks ahead to the future of the sheep industry.

I believe every farmer who is equipped with the facilities should keep a few good brood ewes. Free wool may cause some depression, but it may only be temporary as mutton is holding first place and a few cents a pound off does not spell the disaster it did some years ago; so the decline in wool production has been somewhat offset by the increase in the demand for mutton, resulting in the fact that the production of beef and pork has not kept pace with increasing population, the extent of which increase is indicated in the following statistics of receipt of sheep, hogs and cattle at the Chicago market during the past thirty years, 1880, 1890, 1900 and 1912.

|               | 1880      | 1890      | 1900      | 1912      |
|---------------|-----------|-----------|-----------|-----------|
| Cattle, ..... | 1,382,000 | 3,284,000 | 2,729,000 | 2,652,000 |
| Sheep, .....  | 385,000   | 2,182,000 | 3,548,000 | 6,055,000 |
| Hogs, .....   | 7,059,000 | 7,663,000 | 8,109,000 | 7,180,000 |

A glance at the above figures will tell the whole story. The sheep reaching the Chicago market last year was nearly double what it was in 1900. The increase in hogs was less than in 1890 and only slightly more than in 1880. In cattle, we find practically the same thing. What does this show? It shows the enormous increase in mutton consumption. The report of the investigators of the tariff board shows that the Western range country produces over 60 per cent. of the mutton supply of our country. This investigation also showed that the ranges are taxed to their full capacity, and in many cases, overstocked with sheep, so hence, increase from that section is impossible. Many farmers maintain that it does not pay to keep sheep on high priced land. Prices for mutton sheep that will produce a fair wool clip are bound to be good in the future.

The demand must be supplied from some source, and it looks as if it must be supplied from the farms in the Middle and Eastern states. If England can raise sheep on land valued at \$300 to \$500 an acre, why cannot we produce them profitably on much lower priced land? It is stated in a recent year book of the United States Department of Agriculture, that the per capita mean consumption in this country is 182 pounds compared with 121 pounds in the United Kingdom, 115 in Germany, 78 in France, 76 in Denmark, 70 in Belgium and 62 in Sweden. The same authority also states that the per capita of Australia is 262 pounds and of New Zealand, 212 pounds. These wide divergencies in meat consumption are explained by the fact that in new and undeveloped countries where land is cheap and people who occupy the land are few, meat is the cheapest article of diet.

The reason the sheep raising industry has declined in the West is, that much of the land has been taken up for farming, and henceforth sheep men must own their own land and pay taxes and fence it. This means that the era of cheap mutton has passed. The same is true of beef, and the American people, no matter how they like the prospects, are face to face with the necessity of reducing their per capita consumption of meat to something near England and Germany and other countries. There seems to be no other way to keep the cost of living on a parity with the earning power of the average man. It may turn out that this may be a blessing in disguise, as most authorities agree that a reduction in the amount of meat consumed by Americans would be beneficial to the health of the people.

Of wool producing countries, the United States ranks third, yielding in 1910, nearly 300,000,000 pounds of wool with 51,638,500 sheep. Pennsylvania ranks thirteenth in wool production, eleventh in numbers. Pennsylvania has thousands of acres of land better adapted for wool and mutton production than any other livestock industry, and when one considers the important fact that the population has increased 20 per cent. in the last decade and that sheep stock have decreased 20 per cent., that inevitably the ratio will widen, that the public taste for mutton shows constant improvement, it would seem that anyone situated so they can handle a flock of good wool and mutton sheep should receive substantial returns. Dogs and parasites are, to some extent, detrimental to the raising of sheep in Pennsylvania; but a good dog law, well enforced, and care and good management would overcome these to a large extent, and as the fertility value of sheep manure is above that of other livestock, it would seem that there should be more wool and mutton produced in Pennsylvania than is being produced. ,

**THE CHAIRMAN:** This report will also be received and placed on file. We will now have an address by Prof. McDowell, "Carrying the College to the People."

The address is as follows:

## CARRYING THE COLLEGE TO THE PEOPLE

By PROF. M. S. McDOWELL, *State College, Pa.*

Mr. Chairman and Members of the State Board of Agriculture, Ladies and Gentlemen: Over four centuries ago Columbus sailed westward in the belief that a shorter route to the East Indies might be found. What he actually found and what has developed from this discovery we all well know. A shorter route from the Atlantic to the Pacific has been the dream throughout the centuries since this country was first discovered. In 1915, a little more than a year hence, a great Exposition will be held on the Pacific Coast to celebrate the realization of that dream in the completion of the Panama Canal. This canal is looked upon as one of the great accomplishments of the age. It has been a stupendous undertaking from an engineering standpoint. Its completion marks an epoch because of what it makes possible in the way of transportation facilities. As ships of all nations of the world pass through its portals it will stand, for time to come, as a monument to the genius of our people.

While its construction has been an engineering problem, there are many factors which have contributed to the success of the undertaking and there is one particularly which appeals. The French Government, at one time attempted to build a canal across the Isthmus, but was forced to give it up; not on account of the engineering problems involved, but because of unhealthy conditions which made it impossible to maintain an efficient working force. In fact, Panama became a veritable graveyard of their hopes. Have we heard of any such difficulties during the building of the present canal? On the contrary the Canal Zone has been made comfortable and healthy. The death rate is lower than many, if not in most, of the well-regulated cities of the United States. What has brought about the change in conditions. The discovery of new principles underlying the causes of disease, and the application of those principles to the art of medicine in eliminating the causes and treating such cases of illness as develop. There are great medical research laboratories incessantly at work developing new knowledge. The improvement in the practice of medicine (and we must agree that there has been great progress, and there is room for more) has taken place in proportion to the extent to which the practical application of the discoveries of science have been available to the physicians.

The program of this meeting, I believe, has been arranged with a view of bringing the members of this Board into closer touch with the several departments of the State Government. As a representative of The Pennsylvania State College, an educational institution supported by public funds, National and State,—your institution, if you please—I have been invited to tell you what the College is doing, not so much in the way of teaching students within its walls, but rather in the broader field of carrying to all people of the Commonwealth, the help which the Institution can furnish.

You are familiar with the Land Grant Act passed by Congress in 1862 and providing for an institution in every State of the Union whose chief object should be, in the words of the act itself: "To teach such branches of learning as are related to agriculture and the mechanic arts, not excluding classical and other scientific subjects, and including military tactics, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This act was accepted by the State of Pennsylvania. It early became evident that if satisfactory teaching in agriculture was to be given there must be forces at work developing the principles which underlie agriculture. This resulted in another act by Congress establishing in every State an Agricultural Experiment Station, whose duty it should be to develop fundamental truths upon which farming rests. Almost without exception these Experiment Stations have been organized as integral parts of the Agricultural Departments of the Land Grant Colleges. The Experiment Station is the research laboratory which is at work developing facts underlying the business of farming. Within the last two or three decades, a large amount of information has been accumulated which has come to have a very practical value. The Extension Service of the College is the machinery through which these facts are carried to the people for whom this work has practical value. The research work, as with medicine, is effective in proportion to the extent to which it is disseminated and applied. We all recognize the practical experience in farming is essential.

If one is to choose between practical experience only on the one hand, or theoretical knowledge on the other, all of us would choose the practical experience. It would be our only chance of success. On the other hand, a knowledge of the underlying facts will enable us to work out a better practice. Practice and theory must go hand in hand. There are some things that can be learned only by practice, on the other hand there are many things which practice will not teach. Hauling manure is a very practical operation, but experience here does not teach that the manure is more effective on our Eastern soils if phosphorus acid is applied with it, nor does it teach that the fertility of the soil may be maintained indefinitely if clover is grown regularly in a rotation and phosphoric acid and potash are applied, even though no manure or organic matter is ever applied to that soil. We recognize that the educational factor is not the only one which contributes to success. There are problems of distribution which have a very important bearing. In our extension work endeavor is made to keep in mind the idea of increasing net returns. I wish to tell you briefly of the lines of work now being carried on.

*SHORT COURSES:* One of the excellent forms of Extension teaching is the Winter Courses in Agriculture, offered for twelve weeks during the winter months. These courses are designed for those who cannot give four or even two years to college study, but who can give three months to better fitting themselves for life on the farm. At the present time, 176 students, representing 52 counties of the State, are taking this work. About 15 of these students have previously been in attendance at the Short Course and have come again

to take subjects which it was impossible to get on their schedule in other years.

**FARMERS' WEEK:** For the farmers who can not conveniently leave home except for a limited time at certain seasons of the year, a Farmers' Week is held at the College. This meeting is an effort to place the facilities of the institution at the service of the farmers of the State so that they may have actual college advantages for a few days, at least. The Farmers' Week, which occurred December 29th to January 3d, was the most successful ever held. There was a registered attendance of 980, representing 62 counties of the State. Comments from many sources, both written and verbal, indicate that this meeting has much practical help for those who attend.

**CORRESPONDENCE COURSES:** The College maintains Correspondence Courses in Agriculture. Thirty-six different courses are offered. At the present time, 4,000 students are enrolled. Most of these students are from Pennsylvania and every county in the State is represented. Every course consists of a series of lessons. A list of questions accompanies each lesson and written answers to these questions are required before another lesson is sent. These papers are corrected, written suggestions and criticisms are made where necessary, and the papers returned to the student. This enables the instructor to keep in closer touch with the work the student is doing.

**FAIR EXHIBITS:** An educational exhibit setting forth the results of many of the most important experiments and suggesting the practical application of these results has been prepared in duplicate and is sent to County Fairs. In addition to this educational exhibit, a livestock exhibit, representing the various breeds of dairy cattle, beef cattle, sheep and swine, is included. The entire exhibit is housed in a large tent 30x80 feet. Two members of the staff accompany this exhibit to meet the people and answer inquiries. Last fall, 14 fairs were visited. About 500,000 people passed through the tents and thousands of questions were answered.

**FARM EXAMINATIONS:** Large numbers of requests are received asking for farm examinations and advice. These requests are met so far as it is possible to do so. Since last fall, 30 farms have been examined and suggestions made for treatment. In most instances the traveling expenses of the men doing this work are paid by the individuals asking the service.

**DAIRYING:** Pennsylvania stands third in the Union as a dairy State. Endeavor is made to serve these interests to the greatest possible extent. One member of our Extension staff gives much of his time to dairy work. This work covers both the producing and manufacturing side of the dairy business. Individual farmers and communities are visited; suggestion made as to improvement of herds, the use of a better balanced ration, and in many instances cow testing associations have been formed. Wherever such associations have been formed, the results have proven very satisfactory and helpful. A number of creameries have been visited and aid given.

**CIRCULARS:** Forty-two circulars upon subjects of frequent inquiry have been prepared. These circulars are used to answer in-

quiries rather than to mail to any regular mailing list. They are, however, sent to anyone who requests them. A list of these circulars may be procured upon application.

*THE EXTENSION BULLETIN:* Recently a monthly publication called "The Extension Bulletin" has been inaugurated. This bulletin does not take the place of the regular research bulletins, but is meant to carry information of a more general character. It will also be a means of keeping those on our mailing list in touch with the affairs of our School of Agriculture.

*SPECIAL EXCURSIONS.* The Pennsylvania Railroad has within the last year run a number of special one-day excursions to the College. In this way about 2,500 visits have been brought there to look over the work of the institution. One of these excursions alone brought 1,800 people. This gives the farmers of the State an opportunity to see the scientific work which is being done as well as the practical application of the results of this scientific work to farm practice. It gives the farmer an excellent idea of the close relation which exists between science and practice and secures his confidence to a much greater extent than might otherwise be possible.

*BOYS' AND GIRLS' CLUBS:* The College has had a large part in the development of an interest in young people's work. A corn growing contest was inaugurated some years ago. Now many other organizations and interests are taking up this work and helping to make it more effective. At Farmers' Week, a month ago, over 100 samples of corn were exhibited in the boys' corn-growing contest. There is nothing which arouses interest like competition, and this is one of the ways in which the young people may be interested and at the same time it helps to improve crop production.

*COUNTY AGENTS:* Perhaps the most effective form of Extension work which the institution is doing is the establishment of a representative of the College and Experiment Station in a county. Nine counties of the State now have a County Agricultural Agent. The presence of these men in a local community makes possible a personal contact which can not be had otherwise. These men study the local conditions and are able to advise with the farmer in regard to many of his problems. There is a growing demand from the several counties for County Agents. A word as to the qualifications of the men who become County Agents is probably desirable. In the first place, a man must have had good farm experience, so that he knows the problems from the farmer's standpoint; in the second place, it is necessary that he have good fundamental training, such as is given in a four years' college course in agriculture; and thirdly, he must have a pleasing personality. This work is probably limited as much by lack of trained men as by lack of funds. Men, however, are being trained gradually who will make excellent County Agents.

*MEETINGS:* Since July 1st, men from the School of Agriculture have attended 95 meetings and given addresses. It is not possible to meet all the requests which come to us for this kind of work, although every endeavor is made to do so.

*CORRESPONDENCE:* The correspondence is heavy and thousands of letters are sent out annually in reply to inquiries. Many of these lines of work are limited in scope because of lack of funds and cannot be further developed. There are additional activities which can be profitably taken up.

Thus far what has been said relates to agricultural activities. The work of the College is along broad lines. The Organization consists of five great Schools, Agriculture, Engineering, Mining, Natural Science, Liberal Arts and Home Economics. At the present time there are 2,280 students taking work at the College. Of this number, 1,125 are in the School of Agriculture. The College is serving, not only agriculture, but other interests as well.

*ENGINEERING EXTENSION:* During the last three years the Engineering Extension Division of the college has been conducting apprentice schools for shop men at Altoona; and more recently similar apprentice schools have been established in Harrisburg and West Philadelphia. These are "day" schools which the men attend four hours every week. They are conducted by resident teachers under the supervision of the Engineering Extension Division of the college. More than three hundred are now receiving a practical form of education in these schools. Negotiations are in progress for establishing night schools in vocational subjects at Sunbury and Harrisburg. It will be observed, therefore, that in Harrisburg there are both day and night schools; the night schools for more mature shop men, particularly machinists and pattern makers. In the shop of the railroad at Tyrone very large night classes are now being conducted successfully. Plans are also being arranged for establishing similar schools in vocational subjects for shop men at Meadville and Scranton. In Philadelphia the work has been organized on a very much larger scale than anywhere else. In that city extension classes for shop men are being organized in various parts of the city in co-operation with the educational department of the Central Young Men's Christian Association. Most of the classes will be organized with resident teachers and will be devoted particularly to such subjects as shop arithmetic, shop sketching, mechanical drawing, heating and ventilation, and strength of materials.

A very elaborate educational campaign is being conducted in Erie. The general method is practically the same as in Philadelphia, except that a very much larger number of courses are being offered. In Erie this extension work has the active co-operation of the Board of Trade, Chamber of Commerce, and of the local labor union as represented by the editorial staff of the labor paper. Vocational classes for employed men and boys have been established and conducted successfully for the last three years in Williamsport. The first two years only one teacher for vocational subjects was employed but there are now two teachers. Arrangements have been made to co-operate with the educational department of the Young Men' Christian Association in this city, so there will be no duplication of the courses offered. This seems to be an ideal arrangements and similar methods of co-operation can probably be followed out in a great many other places. Successful vocational classes are also established in Johnstown, Pottstown, Pottsville, Oil City, York and Allentown.

Organization of this work in Lawrenceville, Lancaster, West Chester, Reading, DuBois, Scottdale, Jersey Shore, Norristown and Chester is being affected. The courses in vocational education are not free as it is believed that the courses can be conducted more satisfactorily if a small fee is charged. The total cost for a course of twenty lessons is about \$7.50, including text-books, extra assignment sheets, and instruction. In the case of large classes, of say twenty or thirty students, these fees are sufficient to pay for the instructor. In the advanced subjects where smaller classes must be conducted, special arrangement are made for carrying on the work. Methods of organizing classes are more or less flexible, and it is the object to do all that possibly can be done with the limited funds available to provide the opportunities for all the men employed in the shops and factories of the State.

*MINING EXTENSION:* During the past few years some extension work was carried on by instructors from the School of Mines. This work included, during five weeks of the summer months, evening classes for miners, in the mining towns of Central Pennsylvania and a few lectures on geology and travel delivered before teacher's institutes. In the evening classes in mining, individual assistance was given to the students in various elementary subjects as well as in mining, it being found that many of them required the elements of English, arithmetic and physics before they could proceed with the work in mining. The coal companies concerned gave active assistance to this work. It is intended during the present year to conduct courses of lectures in mining, geology and allied subjects in so far as funds are provided for this work. There is large opportunity here for service to individuals, to committees and to the State in the making of better and more effective workmen and citizens.

*LIBERAL ARTS:* In the school of Liberal Arts, several courses dealing with different phases of English literature have been given. Addresses have frequently been given before teachers' institutes, directors associations, and high school commencements. Correspondence courses are offered to students who have been in attendance at one or more summer sessions. By completing such courses and by attending summer sessions, the first two years of a regular four years' college course may be completed.

*GENERAL:* A plan has been formulated for giving general lectures wherever possible. High schools, academies, normal schools, colleges, teachers' institutes and associations, lyceums of Chautauqua courses, churches, Y. M. C. A.'s, clubs and societies of all kinds can secure lectures singly or in series by making application to the college. Some of these lectures are illustrated, some are not; but all are designed to meet a need between a strictly scientific address and a popular entertainment.

*HOME ECONOMICS:* The Department of Home Economics have done a limited amount of extension work. It is expected to develop this work so that what is done for the farmer's daughter may be on a par with what is being done for the farmer and his son.

To accomplish results, requires hearty co-operation. What your educational institution can accomplish depends upon the people and especially upon the farmers of the State even more than on the Col-

lege. A stream can rise no higher than its source. The people of the State are the levers which move its affairs. We, therefore, ask your hearty and cordial co-operation in the future, as it has been given in the past, to the end that all the people may be served and especially that Pennsylvania agriculture may grow not only in stature but as well in the material prosperity and happiness of her individual farmers.

**THE CHAIRMAN:** We have certainly all enjoyed that helpful address, which will be filed with the Secretary.

**MR. HUTCHISON:** If it would not take up too much time, I would like to add a word here as your representative on the Board of Trustees. I will not take but a few moments. You may want to know what we are doing with the money that has been appropriated by the last Legislature in regard to buildings to take care of the agricultural end of the college, and as a member of the Building Committee, I would like to report to you, and through you to the farmers to the Commonwealth, that we are completing the Horticultural building at a cost of \$725,000. The plans are being perfected for a stock judging pavillion for the use of the agricultural students, at a cost of \$30,000. We have the plans perfected and are ready to have the contract about let for a \$20,000 dairy barn; this makes \$125,000 of the money that was set aside, of \$400,000 for buildings.

Now you may say that agriculture should have some more of this, but I want to state that one thing to you that you may understand that those young men who are taking a course in agriculture, a four year's course, have to be taught for two years in the other schools, the school of Liberal Arts and the Engineering School and other schools that lead up to specializing in agriculture, and the great demand was for a Liberal Arts building. Bids were opened last night for the building of this building at a price of about \$85,000. This will take care of the boys and girls, or help to, for the first two years. Now there was \$10,000 set aside for the building of a laboratory for Home Economics. There has just a little criticism come out that we did not spend \$50,000 to build an addition to the ladies' department or the Department of Home Economics, but if we had taken that money, we would have built two small units, one for Liberal Arts and one for the ladies' department of Home Economics and neither would have been up to the standard they should have been, so they have given the ladies a portion of the Liberal Arts building for teaching and are building this laboratory for \$10,000 for the work in that department, and we built last year a kitchen or dining hall and dormitories to take care of some fifty additional students.

Now we are just doing the very best we can with this money and the bids are advertised. We have got splendid architects; they are doing just the very best they can to get every dollars' worth they can for the college and I hope that we will be successful. I am confident that the architects who have charge of this work are just as good as money can secure in this great State of ours. They are the architects that are building the buildings at Princeton and Cornell and the University of Pennsylvania and a number of other colleges, so you can see that these men thoroughly understand their

business, and we hope that from the next Legislature we will get enough money to put up another unit for the Agricultural Department there to take care of this great incoming of the wealth, which are the young men and young women of this State seeking a better education, and you are the men, you are the representatives of the people that can go back to the people and show them what the needs of this great Institution are, and we will have to rely on you men preaching that gospel, taking it out to the people, and on you women who go out through this Commonwealth, to lift up this college and put it on a higher plane and make it the greatest institution in the United States.

The CHAIRMAN: You do not offer that as a final report, do you?

MR. HUTCHISON: No, I just wanted to give a report as a trustee on the Board.

The CHAIRMAN: Next on the program is a report from Prof. Franklin Menges, Entomologist.

Prof. Menges gave his report as follows:

#### REPORT OF ENTOMOLOGIST

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By PROF. FRANKLIN MENGES, *York, Pa.*

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Nothing new or startling has developed in the sphere of the insect world, except that from several sections of the State reports have come that the aphids have attacked the roots of peach trees and have given some trouble to orchardists as they always do to farmers. These plant lice, as they are generally named, are well known to all farmers because of the injury they do at one time or another to the regular farm as well as the garden crops. In those insects we have a strikingly apparent exception to the rule that insects are developed from eggs that can be found in the insect world. Reproduction in a large percentage of these insects occurs normally without the intervention of a male. In the colder sections of the country, plant lice winter in the egg stage, while in the warmer parts, they may pass the mild winters as the fully developed insects ready for operations every day the weather is sufficiently warm for plants to expand in the sunlight. Early in the spring in the wilder sections when the days become sufficiently warm for vegetation to revive, a wingless insect emerges from the egg and begins sucking the plant juices when the plant is making strenuous efforts to get started and weakens it at the very start. The insect is wingless and usually remains wingless. It grows rapidly and soon begins to give birth to living young. It is called a stem mother, because from it numerous generations of these insects issue during the growing season. All the young born from this stem mother are sexless; they are neither male nor sexually developed females, and like the stem mother, produce young without the intervention of the male. The rate of reproduction depends largely upon weather conditions and

when these are favorable, as many as eight living young may be produced in twenty-four hours and one single large louse may be surrounded with a group of from twelve to twenty or more specimens of living young. The rate at which these grow also depends on the weather; in fact the weather of the early spring frequently determines whether certain species of plant lice shall become injurious. Continuous warm, moist spring weather favors their development but when the mild weather is followed by cold, rainy weather, after these insects have developed and given birth to young, which are still weak, and when, because of the cold weather the flow of the juices of the plant upon which they live has been staid and they have little or nothing to feed upon, large numbers die and in this way by a few cold rainy days in the spring a destructive insect may be so reduced in numbers or so weakened, that it cannot revive sufficiently to materially injure the crops it usually infests during the growing season.

So that all things that appear as holding back agricultural operations in the spring, are many times of more benefit than injury. If, however, weather conditions are favorable and a sufficient food supply is available, the young first produced will, within five or six days after birth, bring forth the second generation of young, some of which may develop wings and fly away to other localities where the food supply may be more abundant, and start new colonies. The first generation may develop wings while others remain wingless, and in this way within a month when weather conditions are favorable, many hundreds of acres may be infested by the progeny of a single individual. This happens only when all conditions are most favorable, which is so seldom the case that no one may get scared about the depredations of these insects to such an extent as to threaten the food supply of mankind.

Another thing. As the summer advances and the tissue of the leaves of plants hardens and the supply of sap is not so plentiful as in the spring and the food supply of the insect is limited, reproduction becomes less until, in the fall, with the stopping of plant growth, it entirely ceases. During this period it becomes necessary, in the colder climates, to provide for the continuance of the species, and fully developed sex forms appear, the males a short time before the appearance the females, the former having wings; the females are wingless. Pairing takes place as soon as the female is fully developed and in a few days afterward, eggs are laid in a sheltered place on plants which begin growth early in the spring, and, in the case of orchard trees, around the buds, where growth begins first. These eggs are difficult to destroy because they are covered with a substance that will resist all insecticides, except strong caustics such as probably the lime sulphur mixture with caustic lime added.

There are many exceptions to this life history, one of which we have in the hop louse which spends its summer on the hop vine and frequently becomes so plentiful that much injury results from this attack. As is well known, the hop vine dies down completely in the fall and does not start early in the spring, furnishing no food supply for the first generations; consequently, after its males are developed and the hop vine dies down, these migrate to plum trees where the females are born, the sexes mate and egg are laid. In the spring,

two or more generations develop on the plum trees until the hop vines have sufficiently developed, when they migrate to their summer food plant; therefore plums should not be raised where hops are grown.

Another thing about these insects is their capacity to excrete a sweetish substance known as honey dew. Frequently when the sap of infected trees flows fast and the food supply is abundant, these insects gorge themselves with sap and, to ease themselves, they void through the anus and socalled honey tubes this sweetish liquid, so that the leaves of these trees become sticky and glazed over and the pores become choked so that the leaves die and drop to the ground. Even the vegetation beneath thee trees becomes coated with this fluid, or the pavement under infested trees in cities become slippery from the dropping of this viscid fluid, ants, wasps and bees feed on this fluid, especially ants are attracted by it, and with their well nigh human instinct they cultivate the society of these plant lice. Frequently in the loamy and sometimes in the clayey soils, not so much in the sandy types, small ant hills abound in the spring. In a short time after this, the roots and leaves of plants become infested with plant lice, and it will be found that, instead of the ants destroying the plant lice, they protect them and assist in their development, so much so that some species are dependent upon the ant for their winter quarters and an early start in the spring. These species of plant lice usually feed upon roots and spend their lives underground, among which is the corn root plant louse. Another is the phylloxera of the grape and the one referred to in the beginning of this paper found on the peach roots. In the case of the corn root louse, probably the best remedy is the use of kainit of which, in order to get a sufficient amount of potash to supply what the corn plant needs, a large supply of the salts of magnesia, with some lime, is mixed with the muriate and sulphur of potash as to prevent the attacks of this louse to a large extent. In the case of peach trees, an application of ten pounds of kainit spread evenly on the surface as far out as the roots of the tree extend, will usually destroy the louse. Tobacco in a trench around the encrusted tree or before planting the trees, is a splendid method of preventing infection, and will either keep the insect away or will destroy it. It seems that tobacco finely ground when sown with the fertilizer in the row with corn or with the fertilizer in grass fields or grain fields, would be both beneficial for the crop as a fertilizer and a destroyer of these insects. It seems, too, that every farmer should raise an acre or two of tobacco, to be ready for destroying these insects. Clean fences, fertile land and good, clean farming are the best remedies for preventing the development and spread of these insects. Numerous parasites also check the inroad of these insects and whenever their numbers increase beyond a certain limit, the parasite becomes formidable enough to check further increase.

The CHAIRMAN: This report will be received and filed with the Secretary. We will now hear the report of the Ornithologist, Professor Surface.

The report is as follows:

## REPORT OF THE ORNITHOLOGIST

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By PROF. H. A. SURFACE, *Harrisburg, Pa.*

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It becomes our duty to prepare the following as our Twelfth Annual Report as Ornithologist, to the State Board of Agriculture. Another year has been filled with opportunity for observation and thought, and has brought us nearer to the solution of certain problems. We feel that one of the greatest steps toward the protection of our native birds was in the act prohibiting unnaturalized foreigners from carrying guns or firearms in this State. Such an act has recently been tested in other states of the Union, and has been decided constitutional. The foreign element, coming into our country and seeing more birds than they have been accustomed to in the old country, evidently thought there were birds to slaughter in this "Country of the Free," and consequently proceeded to get guns and start the killing. The law now prohibits this, in recognition of the fact that the supposed liberty which results in the destruction of another man's property or pleasure can not be tolerated. Our wild birds contribute to both the economic prosperity and ethical pleasure of most of our citizens. There is thus definite reason why our efforts should be redoubled in an active manner toward establishing and maintaining public sentiment favorable to the enforcement of the law by the game wardens, who represent that important arm of the State known as the State Game Commission. The next important step was the Federal enactment placing migratory birds upon a basis of Federal protection in various states of the Union to which they migrate. Now we no longer anticipate the ruthless slaughter of the bluebirds or robins as sport or for food by the shiftless negro or thoughtless gunner in the South. Thus we need not anticipate such a condition as is set forth in the following article from a paper in Indiana county this month:

### "ROBINS DRIVEN TO COLD NORTH BY HUNTERS"

Thousands of Birds Which Came Here for Safety,  
Freeze in Woods

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For the past three winters large numbers of robins have been found in the woods of Pennsylvania, much to the surprise of those who know the habits of the red breast. Two years ago during the severe winter weather thousands of the birds which sought shelter in the Pennsylvania woods froze to death. While R. W. Wehrle and a number of the members of the Boys' Naturalist Club were returning from Kintersburg on Saturday afternoon they found a flock of probably 200 robins in the woods at Grove Chapel Church in Rayne township. The birds were extremely wild and at the approach of the party flew in a northwesterly direction. When asked for a reason for the appearance of the birds in the north at this time of the year, Mr. Wehrle

said that they were driven north by southern hunters who have been killing robins in large numbers during the past three months, as the birds are not protected by law in the Southern States. Mr. Wehrle said that the apparently wild condition of the flock of robins encountered on Saturday was no doubt due to fright resulting from being hunted in the south, and finally driven north to live on wild graped and shumach, or freeze, as thousands of the songsters have done during the past three winters. According to Mr. Wehrle large numbers of robins froze in the Pennsylvania woods two years ago during the severe winter weather. In addition to the robins, the bobolinks, flickers and martins, all insect destroying birds and loyal friends of the farmers, are killed in large numbers by southern hunters, and have had to seek safety in northern woods, where many of them freeze each winter."

The next important step in bird protection is as wide in spirit as the circumference of our earth and as altruistic as the area of man's heart. It is our pleasure to report Federal legislation providing against the importation of the feathers of birds or parts of birds belonging to families represented in the United States. This has been regarded as a blow to the millinery trade in feathers, but it is, in fact, for the protection of birds in other countries. It is not generally known that some of our birds, such as the common Tip up in this country, migrate clear across South America into Patagonia and return. Without such a law nothing could prohibit the hunters in the West Indies and South America from killing myriads of our native birds during the winter and sending them into this country for supposed decorative purposes.

Now such a thing is impossible. Not only is there prohibitive legislation of this kind, but, fortunately, it is being enforced. Aigrette tips, speaking a visible story of parents slaughtered during the breeding season and young starved in their nests in the tropical and subtropical regions, may be displayed on the heads of thoughtless or ignorant women as they leave this country on a trip to Europe, but on their return they find the keen eyes, the strong arm, and the sharp shears of Uncle Sam's agents busy in detecting and snipping all such plumes and feathers from the garments of the immigrants. As with all legislation that is admirable in most regards, this also has had its ridiculous side, when given its most strict interpretation, as, for example, when a wealthy New York citizen wished to import a dozen English pheasants for a dinner he was to give his friends, and found that while there was no law against the importation of the pheasants, there was a law against importing their feathers, and the custom officers decided that the birds should be picked and the bodies sent to their destination, while the feathers were confiscated.

The next great event of the year, relating to birds, was the passage of the Gun License Law in Pennsylvania. We who are owners and residents of farm property can truthfully say that from the first time in the history of our State, we have a law that has resulted in ade-

quate protection of our lives and property from thoughtless or irresponsible gunners, and especially from the town hoodlum. While there may be some objectionable features to a law which is so comprehensive in its application as the Gun License Law, yet we must say from personal observation that it has resulted in better conduct on the part of gunners than we have ever before observed. They have been willing to come to the land owners and ask for permission to hunt upon the premises, and have been more careful to avoid shooting near buildings, among trees or around livestock. The number of young boys carrying guns during the last season was less than previously observed, and the number of gunning accidents was far below the list formerly recorded. The idea of a tag and conspicuous number, which originated in this Board one year ago, has proven excellent.

The game laws of Pennsylvania are the cause of biennial effort on the part of ambitious legislators. There is more or less undesirable shifting, and I regret to say that in the opinion of your Ornithologist at least one step was taken which is very objectionable. This is the provision of a bounty for two hawks and an owl; the sharp-shinned hawk, (*accipiter v. clox*), the goshawk, (*accipiter atricapillus*), and the great-horned owl, (*bubo virginianus*). It is to be admitted that the sharp-shinned hawk and the goshawk are both marauders, feeding chiefly on game, small birds or poultry, but they also are beneficial, feeding at times upon rats, mice, rabbits, insects, etc. The goshawk is with us only in the winter time and is a rare bird in this State. It preys chiefly upon rabbits and ruffed grouse, but in destroying the former it performs a needed service for the increasing number of orchardists in this State. More can be said in favor of the great-horned owl than against it, but the chief point regarding the bounty on these birds is that the principle is wrong. Nature has its balance, which is self-operative. Mankind, in his ignorance, is too liable to interfere with and overthrow this. Also, very few persons distinguish between the different species of hawks and owls. For example, the long-eared owl (*asio wilsonianus*), which is one of our most beneficial birds, is rightly protected in this State at all times of the year by the present law. It is in every way as illegal and punishable to kill a long-eared owl as to kill a song sparrow or bluebird; yet under the stimulus of a fifty-cent bounty, the gunner, upon seeing such a bird, may easily imagine or hope that it may be the great-horned owl. Upon shooting it and presenting it to a justice of the peace, the latter may not be sufficiently educated in technical ornithology to know the different species of protected and unprotected birds and even pay for one that is protected.

For example, there are sixteen species of hawks or representatives of the hawk family (*Falconidae*) possible to be found in this State. What justice of the peace would be able to distinguish between representatives of various protected species of these and the duck hawk, pigeon hawk, and cooper's hawk, which are on the unprotected list, and for which no bounty is given, and the sharp-shinned and goshawk, upon which a bounty is offered. Let it be remembered that most of our hawks are of the red-shouldered (*buteo lineatus*), or the red-tailed (*buteo borealis*) species and are protected by law at

all times. Also, while the law sets a bounty of fifty cents for the sharp-shinned hawk and goshawk, yet twenty-five cents must go for the affidavit, and the gunner only obtains one quarter of a dollar as bounty, and also runs the risk of having killed a protected species, which would lay him liable to the same penalty as from destroying any other bird of a protected species. We deplore the law-breaking ignorance manifested by those persons who persist in stretching the remains of some raptorial bird upon a board, tree or building along the road near a residence. It is not uncommon to see a hawk or owl nailed to a barn, as though to display the prowess of the gunner, when, in fact, it is generally a protected species, and in all cases, is an exhibition of the ignorance of mankind.

Dr. Kalbfus this afternoon called attention to the cuckoo as an insectivorous bird, the stomach of which, he rightly avers, is lined with the hairs of caterpillars. I took fifty-two hairs from the stomach of one cuckoo and I know of a definite case of a boy who shot a cuckoo and took it to a justice of the peace and got fifty cents bounty on that bird because the justice thought it was a small hawk. I know that is absolutely true. In most cases the birds so displayed are the red shoulder and red tailed hawks, which are protected by law. Let a note of warning here be sounded, that the wardens of the Game Commission are authorized to enforce the law, and there is liable to be arrest for killing protected birds, among which are certain species of hawks and owls.

Let us help to put an end to the confusion by abolishing the bounty for the two species of hawks and the one owl named in the Bounty Act. The birds which at present, are not protected by law are the following: The English sparrow, the English starling, the bluejay, the kingfisher, the buzzard, the sharp-shinned hawk, cooper's hawk, goshawk, pigeon hawk, the great-horned owl, barred owl and crow. The only two whose absolute destruction in this country we earnestly recommend are the first two named, which it will be noted are the foreigners. If we can, through legislation, education, co-operation and otherwise, destroy or suppress the English sparrow and the English starling, we shall be rendering a service to mankind that is worthy of our effort.

In this connection we recommend using both of these birds as food. Prepared like the reed bird or rice bird the English sparrow can well take its place. A gentleman from Reading writes us that he takes the young English sparrow from the nests when they are in the condition of squabs and cleans and cooks them, finding them excellent eating. He further adds that he has observed this bird destroying the robin, orioles and other birds in his region. This is in accordance with observations previously reported to you by your Ornithologist. It would not be difficult to keep the English sparrow from nesting on the premises. A campaign for the regular monthly extermination of its nest is earnestly recommended. Get the boys started. It is the pleasure of your Ornithologist to report that the quail or bobwhite has increased in considerable numbers in this State during the past two years. The country boy can now find it possible to enjoy the shrilly whistled morning call of this bird, and to reply by imitating its notes, as we have so often done. An of-

ficer in the State Conservation Association writes to us concerning the quail, as follows:

"I noticed your fight in the Legislature for birds, with which I was quite in sympathy, and appreciate your efforts so much that I wish to help the good work along. Last year I planted a field of millet and let it stand. This winter hundreds of birds are feeding on it, and they seem to enjoy it. Now we wish to stock it with bob whites. Can you tell me where I can secure birds?"

We replied to him that they are best obtained through the State Game Commission, which has imported some from the Southern States. Decided interest has been shown by many persons in feeding the quail during the recent period of prolonged snow. This is excellent work, as it does not eat the buds of trees, as does its relative, the ruffled grouse, also called pheasant. Knowing that buckwheat is one of the best articles of food for this bird many persons have purchased this grain during the present winter to feed to the quail. Without desiring to do any advertising, we can inform interested persons where they can purchase a quantity of buckwheat for this purpose at the present time. The writer of this report last summer sowed buckwheat as a nurse crop with crimson clover, for the purpose of fertilizing the soil, and obtained excellent results. The buckwheat started soon to grow, shaded the ground, and kept it damp, and the clover came on well. The buckwheat ripened, and part of it was left in the field for the quail, which are feeding upon it now, and the crimson clover is there to give the best clover crop for the orchard. We recommend sowing from one peck to one-half bushels of buckwheat and eight quarts of crimson clover to each acre of corn ground at the time of last working of the corn. This will be found good agriculture from the standpoint of soil fertility, and also a good means of feeding seed-eating birds in winter time, such as the bobwhite or quail, also called the partridge in the Southern States.

The office of the Economic Zoologist of the Department of Agriculture has published press letters on bird conservation during the year 1913, giving information concerning the legislation and protection of migratory birds, and other information in economic ornithology, which has been widely copied in the press of the State. It is also completing an elaborate bulletin upon the economy and habits of the Passerine or smaller birds in this State. A novel feature of the year in ornithology should be recorded as it is in connection with the popular effort to preserve purple martins and induce them to colonize around the premises. Many persons who, in accordance with our directions published some years ago, have erected martin boxes, find that these very interesting and altogether beneficial birds are coming to their boxes for nesting purposes and are multiplying. Mr. J. P. Reiff, Secretary of the Fish and Game Society of Montgomery county, in attempting to move some martins to his premises in Norristown, waited until the adult birds had young in the nests, and then closed the boxes at night and moved them; but a carpenter working near them the next day made so much noise that the

old birds in their fright and bewilderment departed for other regions. Nineteen of the young birds were left in the nests. With boiled eggs, mashed potatoes, lettuce, pieces of lean meat, milk, meal worms and other insects, Mr. Reiff fed these nestlings until they reached maturity. The amount of food they consumed was something marvellous, amounting to tens of thousands of meal worms. They would eat more than their own weight in a single day.

The details of this are published in that sprightly Pennsylvania magazine alled "In the Open," published at Pittsburgh. After the young martins commenced to fly they became so tame that they could be called from afar by a whistle, and a single call would be enough to bring them from away in the atmosphere in great numbers to perch upon their preserver. Mr. Reiff's task was so intelligently performed that he succeeded in rearing to maturity sixteen of the forsaken nestlings.

A proposition is now going forth which your Ornithologist endorses and recommends for favorable endorsement by this Board, and that is the setting aside in each county of at least one area to be a haven of refuge for the birds and for hunted wild life. Surely such creatures deserve to have some retreat that they can call a place of safety, if not a home. In this day of protecting the weak and propagating the beneficial, can we not also feel justified in lending our aid to this plan for the county haven of refuge, where no shooting, hunting or trapping is allowed to any time during the year.

In conclusion, let us urge that we lay aside all minor personal prejudice, and be willing to take harmonious part in furthering that legislation and enforcement of legislative enactment which must result in the protection of our native birds and in advancing the welfare of mankind.

MR. PRESIDENT: I wish to add before leaving the floor, that while it is not exactly my subject, yet I think every member of the Board knows of the work I have done in breeding and propagating scale parasites. I have some pictures of these parasites in the lantern, and if there is time, I can show them in five minutes time. This is such a new subject, and so important, that I feel that the members of this Board should have this information first. I always feel like giving some such information to these gentlemen, who are practical farmers before I send it out to the rest of the world.

A MEMBER: Did I understand you to recommend the protection of the turkey buzzard?

PROF. SURFACE: I did not recommend the protection of the buzzard, no, sir. While my assistant is making the connection for showing the slides, I will give a word of explanation concerning these scale parasites. About four years ago, in giving a public demonstration in the orchard of Hon. William T. Creasy, near Catawissa, I said we had found there were parasites working on the San Jose scale, which I believed would ultimately clean it up in this State. This statement is confirmed by two persons now in this audience. Since then we have been breeding the parasites. We have bred fifteen distinct species, just as distinct from each other as a hog is from a sheep or a horse from a cow. We have bred or reared them

by the thousands of specimens and we have found them absolutely cleaning up the San Jose scale over a large area, which is practically the southeastern quarter of Pennsylvania.

If any gentleman wishes to go with me tomorrow to the Borough of Mechanicsburg, only three trolley fares up the Cumberland Valley, I will show him trees that have been as badly infested with the San Jose scale as any in Pennsylvania, absolutely cleaned by these parasites, and they never have been sprayed, and if he does not agree with me after having seen it, that this is the work of the parasite, I will pay his trolley fare, if not for his time. I was so impressed with the importance of this subject that I gave special attention to the breeding of these parasites, and it seems to me that the members of this Board will be interested in my reference to this subject and in the opportunity to see these pictures directly from nature, showing the different kinds of parasites we have bred.

The first slide shows, as you will see and know too well, the fruit, the leaf and the twig of the tree infested by San Jose scale. You know, my friends, that in almost every county of Pennsylvania, that was a familiar sight up to within two or three years ago. The different specimens on there are male and female; and this is another form of San Jose scale. As we commence to examine such a branch more closely, we see it is covered by the pest, completely overed, encrusted. Such a tree as that is in condition to die, if not given prompt and severe attention, both in thorough spraying and severe pruning. Under the microscope, this is what you would see, an extended representation of a bad infestation by San Jose scale. The characteristic form of the San Jose scale is there plainly shown. You see the little ring around the white tips of the scale, that tip being in the center and the dark ring around it. It is a character of that particular species that is made manifest under the microscope and which I never have seen shown so plainly as we see it there tonight; that is just what our inspectors look for when they come into your orchards, and when they see that they know it is the San Jose scale, and not one of the 20 or 30 species that might be found there—that particular specimen is not infested with the parasite, because the scales are not bored or punctured, but we will show you now what you can find all through this region, you can scarcely find an orchard that has once had much San Jose scale in it that you don't see just that condition there. The scale has been bored by the parasite, a winged, very minute, wasp-like insect, smaller than a period in the ordinary newspaper print; even with its wings spread it would not reach over the space covered by a period. It lays its eggs in the soft body of the San Jose scale. The larva, grub or maggot feeds on the tissue of the scale and when it is through feeding, it bores through the scale and comes out as the winged insect to mate and lay its eggs in other scales. The insects that you see on that slide are the shells where these parasites have emerged, and I can show you that in almost every orchard in this and adjoining counties.

Now I will show you some of the different species of these parasites themselves. They don't have common names; this one is *ethilius usafenus*, and that is magnified about 800 diameters. Note, as we go along, how distinct the different species are in the character of the

wings, legs and other structures. This is *pospeteny lisiocia*, which is the one most abundant in this region and throughout North America. This species we have bred by the thousands and tens of thousands, and sent them into different parts of this and other States. This is *prosopeltus orantii*. I have been fortunate in capturing both the male and female specimens there; it is the second most numerous species. The picture is an unusually good representation of an insect, as good as some of the best line drawings. I wish to give proper credit to my photographer, Mr. Smith, the operator of the lantern, for the excellent work he has done.

These specimens have been bred and the slides made all right here in this building. The next is *aslurus liceocampi*; how different in texture and appearance from the others. This comes from the fact that it attacks the egg of the tent caterpillar, *liceoopan*, and it has been bred in the eggs of the tent caterpillar and also from the scale. The next is *onofraschi anafras*, so named from the fact that it feeds on the scurfas scale as well as the San Jose scale. The next is shown *aspidifagus citronus*, from the fact that it is first bred on the orange, the *citronus*, is the Latin name; but we have bred it here on the San Jose scale in this State in considerable numbers. The next specimen is known as *annigris grafilus*. It may possibly be a secondary parasite. It is not abundant in this State, in our breedings, but it is one that has come from our cages. Any person interested in seeing our breeding cages, we would be glad to show them, in the annex to the greenhouse, tomorrow. This is one of the most interesting parasites known, *signafora niger*, *niger* meaning black, black in appearance. This one is known as *perisoptrus poxarcanus*. It is highly colored and decorated and is a Mexican, for sure. It is one of the peculiar species we have bred from the San Jose scale, living in this region. That is the male of a scale insect closely related to the San Jose scale; it shows that one is liable to get the male insect in place of the parasite if he doesn't watch out. That also is another specimen of the male that looks exactly like the male of the San Jose scale, but it is the rose scale.

This is a species of uncertain classification which is not yet named specifically. The peculiar fact is that we see the eggs of the insect on the slide. The adult then probably dies, the larvae remains in the scale during the winter. This is another unnamed uncertain species, a species not described. The eggs are also shown. It lays its eggs in the fall of the year. This is another species of an uncertain type. It is entirely new, doubtless new to science and is vastly different from anything else I have shown you. There is a slide showing the almost complete perforation of the San Jose scale by the parasite. See those perforations in almost every scale done by the parasite. I show there an old branch and a new shoot. Note, if you please, how completely the scale covers the old branch. See the dusty or powdered appearance of it and the entire absence of the scale from the new shoot, showing that the parasite cleaned it up in one year's time; that was a tree that was never sprayed. That is the same. Note the old branches, how completely covered with scales, and the new shoots with no scale or remains of scale upon it, from a tree never sprayed, showing how the parasite cleaned that tree. Finally, I show you a specimen of a mite, a new species of mite, feeding upon

the San Jose scale. That is what is commonly called a red spider, but not the ordinary species, feeding on the scale.

A Member: You spoke about the young martins raised at Norristown; some of those same birds were raised in my next door neighbor's yard and they were a great care to those people, but Mr. Chrisman went along to get the parent birds with the young in the cage; they went fourteen miles and after the old birds got away, they felt themselves responsible to rear the young, and I tell you it was a work; they fed them at first every hour and every two hours, and at last those birds, as they grew, became so tame that when they commenced to fly out if Mr. Chrisman would go out in the yard and whistle, they would light on his shoulder.

PROF SURFACE: I am very glad to have my statements verified in that manner.

The CHAIRMAN: I don't believe the reporter got the names of all those parasites, but the report is ordered filed.

PROF SURFACE: I will be glad to help him out when the time comes.

The CHAIRMAN: Thank you, Profesor. We will now hear an address by the Supt. of Public Printing and Binding, the Hon. A. Nevin Pomeroy.

Mr. Pomeroy addressed the Board as follows:

#### THE PUBLICITY END OF THE STATE GOVERNMENT

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By HON. A. NEVIN POMEROY, *Supt. of Public Printing and Binding*

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When I received a note a short time ago from the Secretary of Agriculture asking me if I would make a few remarks at this meeting, I was at a loss to know what I could say, from my Department, that would interest agriculturists, but we all have such a high regard for the Secretary down here, that when he commands us to do anything, we feel like obeying; so I told him I would try to say something to you on the subject of the matter of the publicity end of the State Government. It has been my good fortune, I might say, as well as my honor, to hold the position that I do as Superintendent of Public Printing for about ten years. During that time the development along the line of publicity, as far as the Departments here at Harrisburg are concerned, have been remarkable. I do not believe that ten years ago there was much more done than the annual reports of the various departments, the pamphlets of laws, Smull's handbooks and a few other things. That has increased wonderfully in the last ten years, and, I think to the advantage of the State. The printing department, as you possibly know, the Superintendent of Public Printing has nothing to do, as far as the printing office itself is concerned. That is given out by contract every four years. I have been under the impression for several years past that it would be

well for the State of Pennsylvania to own its own printing office, but the Constitution of the State prohibits that, and until that is changed by the vote of the people and the concurrence of the Legislature, it would be impossible to do it. I believe it would be better in many ways, especially as the work of the Department is increasing with each succeeding legislature.

You heard here this evening of the Hunters' License. When Secretary Kalbfus came down to see me to have those Hunters' Licenses printed, I went up in the air, I didn't know what to do, every Hunters' License was different, there was a different number for every one, every county was different, every number in that county was different and I did not know what to do to distinguish them. The Game Commissioner said that he felt there would be at least 250,000 to 300,000 hunters in the State of Pennsylvania. I could hardly believe that I told him that I thought that ought to be cut down, bring it down to about 150,000. So we got the 150,000 ready, and we hardly had them out until the telegrams and demands came in for more. We kept on until it got up to just about where the Game Commissioner said it would be, 250,000, so I found that he knew a great deal more about it than I did; so this time he has come in with his order which I received from him to-day, with his order for about the same number, and I think he is on the safe side.

Among the most important things that I think is being done by the Legislature is the bulletins that are being provided for by Acts of the Assembly for the various Departments, and among them especially the bulletins sent out by the agricultural department. Now I happen to be somewhat of a farmer myself and I read those bulletins with a great deal of interest, and I have my farmer read them, he goes over them very carefully and I am sure they have been of infinite benefit to him and to me, and you know they would be to every farmer in the State. All that work is for the best interest of the people, and while it increases the expense of the printing of the State, at the same time the people are all being benefitted by it so that the State is doing a great work in the publicity end. I used to be a newspaper reporter just like my friends here. I have been a journalist for about thirty-five years. These young men may not know anything about it, but some of the older men will recall it, what a time we used to have in the newspaper business. There would be a wreck on the railroad and we couldn't get any information at all. We would go to the officials, "Nothing to give out." They wanted to suppress everything, didn't want the newspapers to get it. How is it to-day? They have got their publicity men, everything is given out as rapidly as they get it over the wires. These young men will bear me out on that; they can get most any information with reference to a wreck down here on the Pennsylvania, the Cumberland Valley or the Reading Road. If it occurs, it is given to them willingly by the officials of the railroad. All the larger corporations are going into that, to educate the people along these lines, and that is what the State is doing.

There has been some criticism about the expense of printing, but I want to say for every gentleman, every head of a Department on the Hill here, they have exercised a great deal of care and precaution, and they come to me and we have gone over the matter before

they have decided to have certain things done, as to the cost of those things; everything has been taken into consideration. I want to say for every head of a Department in this building, that they have been exceedingly careful.

Another matter that has increased our printing somewhat is the large number of foreigners we have in this State. We meet every two years, our Legislature, to pass laws. The English language is as much Greek to those people as Greek would be to a large majority of us, I guess. They have got to be given certain laws in their own languages. Those laws all have to be prepared in the Hungarian, Slavic, Lithuanian and other languages, fifteen or sixteen of them I think we have over there, they have got to be interpreted and printed in their language. We take the interpreter's copy and print it as he gives it to us. We don't know whether it is right or wrong, but up to the present time we haven't heard of any of them being wrong, so the interpreters have evidently given us the right sort of copy for it.

So these various things, as I say, are helping along in publicity. We are giving to the people of Pennsylvania one of the most important things, that possibly would interest you more than that, and that is the question of paper to-day. The paper that is made today, the large amount<sup>t</sup> of it, is not going to last, in my opinion, twenty-five years. The State of Pennsylvania is making records here that are invaluable. All the records in these various Departments here have to be preserved. If they are not, they amount to very little. Unless we can get paper for them that will not disintegrate, go to dust, those records will all have to be re-copied inside of twenty-five years. We have, within the past two or three years, to overcome that, adopted this plan, that the paper for the records of the State that are to be preserved, the best paper must pass a certain test. When the bidders submit their samples and give their bids for paper—we make them submit a sample with the bid—that sample is sent off to Boston to Arthur D. Little, who is supposed to be and I guess is the greatest paper chemist in the world. He gives us his analysis on that paper. If the sample is not up to the requirements, we reject it; if it is, we accept it. In that way we are trying to get paper to put into the records containing at least nine y per cent. of rag, and that is difficult to get.

The paper business is now the twenty-first in the matter of manufactured products in the United States. It amounted last year to over \$300,000,000. You can see what an immense amount of paper is being manufactured, and it is very difficult to get the rags, so they resort to substitutes. The substitutes used largely has been wood pulp. Now they are up against a proposition on that question: the wood is being taken rapidly from off our land, especially the kind of wood, pine and fir, used in the manufacture of paper, and they have resorted to a number of other substitutes instead of wood. They have not been able, up to the present time, to find anything that they can take the fibre out and manufacture paper cheap enough to equal wood, and they have got to get a substitute for it, or the price of paper is going up.

Now that matter has interested a great many scientists for quite a while. Our friend, Mr. Montgomery, of the Library, saw this

matter coming a few years ago and wrote to nearly all the newspapers, in fact all the newspapers in the State that send him their papers for the State Library, to be placed on file there, asking them to give him a copy on linen or some other material that will keep. The newspapers that are going into his library to-day, unless he is getting linen papers for his copies, are not going to last. I have that experience in my own newspapers to-day, where the papers are decaying. I happen to have a paper that is over a hundred years old. The older paper used back years ago is better than to-day, but the paper made within the last twenty-five years is not.

I am not going to take up much of your time, because Mr. Montgomery is here to follow me, and if he doesn't get two hours for a speech, he isn't happy; but before I close I want to read you a little extract I have taken from a recent copy of the *Scientific American* on this subject:

"Each succeeding year finds new uses to which this valuable material may be put, with the result that each year recently has witnessed a slight increase in the price. The chief source of pulp for common grades of paper at the present time is the wood of certain pine, spruce and fir trees. With an increase in consumption and a limited supply, there can be but one result—in a few decades the supply will be exhausted. This being recognized by scientific men, they are now making thorough investigation to find a suitable substitute. The man who devises new processes and machinery that will make the paper manufacturer independent of the wood pulp supply, will find a great pecuniary reward awaiting his success."

Here is where the agriculturalist may come in for an increased earning power on the farm. A material that will meet the requirements must contain a fibre that will interlock and cohere in a homogeneous sheet. There are many vegetable substances that will meet this requirement, but so far the work of extracting the fibre has been too expensive. Numerous attempts have been made to employ vegetable bi-products such as sugar cane stock, sugar beet pulp, etc., but until these can be made into paper at a price less than three cents per pound there will be no immediate hope of commercial success. About forty years ago, before wood pulp was introduced, straw was largely used to supply the fibre. This material was abandoned to a considerable extent at that time because it was found possible to manufacture the cheaper grades of paper from wood pulp. In recent years, however, considerable straw has again been used. It is now possible that the manufacturing of paper from straw will again be revived and this industry given a new impetus. A German professor has recently patented a process for obtaining proper ingredients from the refuse of canning factories, especially pea and bean straw and the straw and trimmings from asparagus. This German professor predicts that lucrative industries will be established by the co-operation of growers and canning factories. A recent scientific writer in referring to the discovery by the already mentioned German professor of the pea, bean and asparagus fibre for the manufacture of paper, suggests the advisability of applying the same process to other material which is now of little or no value—for example the fallen leaves of deciduous trees. The toughness of the fibre is

proved by the fact that the skeletons of the leaves do not decay until late in the winter.

A number of efforts have been made to extract and use for paper manufacturing the fibre of the Southern pine, which grows in abundance in the southern part of our country and which would supply the world with the cheaper grade of paper for years, but the wood has been found to be too resinous, making it too difficult and expensive to digest the fibre by any of the well known methods. In Louisiana recently a mill was established to make paper from saw mill shavings, but so far nothing has been attempted but a heavy wrapping paper, in the manufacture of which the mill is meeting with some success. One inventor has devised a process for utilizing the fibre from banana stems, tobacco, hemp and sea grass and several other inventors have suggested processes for extracting fibres from peat. But the laws of economics are as inflexible as the laws of nature and until the price of northern wood pulp rises to a higher figure than at present, these processes must wait for commercial development, serving meanwhile little more than reserve processes. The Pennsylvania farmer, however, has solved many a problem and may it not be possible that he may yet be able to produce upon his land the much needed substitute for the northern wood pulp that seems to be so rapidly disappearing through the devastation of our forests.

The CHAIRMAN: This address will be filed with the Secretary, as the others. We will now hear the address of Hon. Thomas L. Montgomery, State Librarian.

Mr. Montgomery spoke as follows:

### THE BOOK AND THE FARM

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By HON. THOMAS L. MONTGOMERY, *State Librarian*

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Mr. Chairman, Ladies and Gentlemen: As I listened to the burning words of farmer Pomeroy, a few minutes ago, my heart glowed with joy because I, too, was a farmer. I had no idea that Mr. Pomeroy was; I thought George Hutchison and myself were the only members of the Old Guard who had anything to do with the farming interests of the State; and I was not a real farmer, I was rather an agrarian, a gentleman who supports a farm in the country by having a well paid position in the city.

Mr. Pomeroy's remarks with regard to this question of paper, deserve some notice from me. I did send notices to all the papers asking them to produce one copy at least on linen paper for preservation in the Library. About twenty-five publishers are now furnishing me with papers of this kind, so we will have a partial record of what has gone on the past, in these records, instead of having simply a mass of disintegrating pulp, as I call it, which will be the resultant of the wood paper. In these days of physical, moral and mental unrest, it is well for every community that they should possess a collection of books. The child finds himself vocationalized very early

in life; the young man becomes a master of arts without knowing anything about the classics; the average child gets no training beyond the age of fourteen years, and if the child is, as it is supposed he is, the father of the man, it is just as well that he should have some quiet place to which he can resort and settle his family affairs in the presence of the records of the great people of the past and with the literature around him, the best literature of the present. This principle has been adopted in cities and towns throughout the country, and the fact that one hundred and forty free libraries have been established in Pennsylvania within twenty-five years, and that each year produces several converts proves that the idea of a people's university is not only right theoretically, but that practical difficulties have been eliminated, for no free public library ever fails.

The situation in the towns having been disposed of, the missionaries of the library movement immediately took up the question. But what of the open country? The various State governments appointed commissions to consider the advisability of bringing the book to the individual where the individual cannot conveniently take himself to the book. The State of Wisconsin was a pioneer in this work. But the idea is not wholly new, for in Governor Pennypacker's "Annals of Phoenixville," there is an account of the Charlestown Library, which distributed books in the eastern part of Chester county in 1812, and there was a similar institution circulating from corner stores in 1798. Dr. Sharpless of Haverford College tells of a Charlestown Library in Chester county from 1800 to 1850. In Wisconsin, however, the movement had the backing of the State, and the State organizers took advantage of every means of transportation to carry the message of free books to every hamlet in the sparsely settled districts. In Pennsylvania the work was authorized by Legislature, without an appropriation, in 1899, and six hundred little libraries of fifty volumes each, have been travelling over the State ever since. We send them to the study clubs, to places of three or four hundred inhabitants and out into the cross roads and by-ways and they may be obtained upon the application of any twelve citizens in any part of the State.

We have not reached the point where we have ever made a pin scratch upon the surface of what can be done. There is no question about it, this is a great work. It is not a new idea. Way back in 1800, there was a similar movement, as I just stated; but no effort of this sort can simply be pushed by us, the desire for literature must come from the people in the rural districts. Whether you talk about rural uplift or anything else, anything of the kind must come from the people themselves and they must appreciate the opportunity afforded to them, and if they do not take an interest in it, if it does not touch them internally, the effort is largely negatived. We are doing our best to reach these people in the rural communities, doing our very best to see who wants something which is worth while and it is our desire to furnish it to you. We are spreading this work gradually, because, as a matter of fact our appropriation would not allow of every community in the State of Pennsylvania coming to us at one time; but there are some four hundred that are doing that now and we want to gradually increase that.

We have, under contemplation, a plan whereby we can utilize the country school house, possibly as one of the centers of distribution. Sometimes we send these books to a store and sometimes to a post office, sometimes to a private house. Somebody has to be responsible, of course, for the care of the book, but it is our desire that nobody in the State of Pennsylvania shall need anything in a book that cannot be immediately forwarded to them. If it is the case of an individual, the request can be addressed to me and the State Library will furnish any book to any particular citizen of this State. When the need is that of the community itself, through these travelling libraries, we will send the best literature to any people that need it. There has been going on in Delaware a search of what books are needed by people in the rural communities. Usually they read better literature than those in the towns, they take the real thing rather than the trifling thing. In Delaware the commission sent out a certain list of questions, "What books have you in your house?" The school children were asked this question and they brought back the answer from their parents, and ninety per cent. of them answered the questions as a whole, and the first question they answered by saying that they had, always, every one of them, the Bible. When it came to other things, one of them reported boastfully that the catalogue of Sears, Roebuck & Company, of Chicago, was the only bit of printed matter in the house. There were quite a number in one county, forty per cent. who reported that they didn't read anything.

Now, this is a cracker district. You no doubt know the story of the Georgia cracker. He is a gentleman that doesn't do any work unless he has to, and on one occasion a Northern man went down and asked what a cracker was. They told him, "You see that black object over in the third field?" "Yes." "Well, that's either a cracker or a stump. You stay here two hours and if that object moves, it's a stump." The people of lower Delaware are very much like the crackers of Georgia, they do very little, but nevertheless that is a high percentage, that forty per cent. don't read anything at all. I do not believe those conditions exist here at all. We have not made an actual canvass of this State, but we do wish to spread this work and spread it logically and do it well, and I feel that unquestionably we have begun along the right lines. It is not possible to do everything within a few years on a small amount of money, but I wish all of you people would go out and tell the communities in which you live of this travelling library system being in existence, ask them to try it and criticize it and tell us where we are lax. If we are not supplying the right kind of literature tell us where that is the case.

I have only one word further to say to you to-night and that is with reference to the lantern slides, which we have developed, in connection with the State Museum that is also under my care. We circulated during the last six months about 50,000 lantern slides. These are colored lantern slides on every conceivable subject. There must be occasions on which these would be useful to each one of you in talking in your communities. You can have these beautifully colored lantern slides under the same conditions that you get the collections of books, and when I tell you that 50,000 of these have been sent

out during the last six months, you can imagine they are being appreciated to a considerable extent. Each slide has been out four times in that period.

MR. HUTCHISON: Do you furnish the lantern?

MR. MONTGOMERY: That is the point I am coming to. I hope to have a cheap lantern that can go with these slides. We have not been able yet to get one that is quite what we want; but in extreme cases we would even furnish the lantern, when it comes to the question of something along the line of instruction. When books of mere amusement are to be considered, that is one thing, but we don't want anybody to miss the opportunity of giving instruction or receiving it, if it is in our power to help that cause along, and I hope that in both these lines you will spread the good story as far as you can and let the people come to us and try us. If we fail, that is our fault, but I don't think we will.

MR. HUTCHISON: I would like to know how many persons here have made use of these travelling libraries. We have been getting it for five or six years in our little village, our country people and town people are reading it and you would be surprised how much there is in it and it can be had just for the asking.

MRS. FOULKE: May I say one word about those travelling libraries? It has been my good fortune to have an address and in that address I have spoken of these libraries. I went to see Mr. Montgomery and he told me about them several years ago and I have carried that news all over this State wherever I have been sent, and I have never been at any place where I have not been surrounded by crowds of men and women anxious to know about it, and especially the little boys, hundreds of them, will come to me and ask me about this library. Tomorrow night I will speak again of a special library I have had and the way it has affected the men and women all over this State, and especially in the matter of domestic science. They all seem anxious to read them.

SECRETARY CRITCHFIELD: I want to talk about a minute or possibly a minute and half before we adjourn—possibly two minutes but not beyond that. First of all, I want to say that Dr. Kalbfus, who delivered the very forcible and excellent address here this afternoon on the subject of bird protection, has a number of bulletins here with pictures of bird homes that can be erected on the farm; they are right here and anyone who wishes one of them can come and get one before they go out. What I wanted to say particularly is this. I think you have all heard already how important it was that we should ask the different departments of our State Government to come in here and assist us in this meeting so that we will get closer together and come to an understanding of what is being done by all these Departments. In order that we may have this understanding, it has been necessary to make our program a little larger than usual, and when I came to take up this program, I scarcely knew what to do. My first thought was that I would ask the Board, at the very first session, to adopt the program. You see that I have provided for a little less than three days. We have found that we have been able to

get through with today's work by extending the work up to ten o'clock to-night. Now I want you to think over the matter tonight, and, if, to-morrow morning, you have reached the conclusion that it would be better to amend the remaining part of the program and extend our time on to Thursday afternoon and Friday forenoon, even Friday afternoon and Friday night, let there be a proposition to amend the program to-morrow morning, so that this will all be for your consideration, if you think it will do better. My thought was that if we could get through by Friday noon, you could have an opportunity to look around the Capitol, visit some of the Departments and have a little social intercourse with each other before you go home. Many of you perhaps will not start home until Saturday morning. Think this over and have your minds made up as to what you want to do, whether we will extend the time or undertake to complete the program just as it is.

MR. YOUNG: It appears to be important that the Executive Committee take up the work that will be assigned to them. Will it suit to meet in the morning at your office, Mr. Secretary?

SECRETARY CRITCHFIELD: Certainly.

MR. YOUNG: Then the Executive Committee will meet at nine o'clock at the office of the Secretary.

MR. BLISS: It is my pleasure to be associated with Mr. Montgomery in connection with this travelling library work, and that particular kind of work is directly under my control, and I want to say to those of you who are here and who are or have been getting travelling libraries, that we would be very glad to have you come over and call on us and we will show you how to do the work and show you our collection of books that we draw on for this purpose, and give you any information we possibly can. I will be glad to get any suggestions or information from you that you can give us that will help us in carrying on this work and enable us to make it more profitable and attractive to the people who live in your district.

MR. HUTCHISON: We are up to date this evening. Mr. Foust was not present, but Dr. Kalbfus came in and took that number, and if we keep right at the work to-morrow, I don't see why we cannot carry the program right along, if everybody is prepared to go to work. Of course we have some reports to make. That road question is going to be a warm one, I presume, getting it all threshed out and the roads all built all over this Commonwealth, 8,800 miles of road to build to-morrow—devise the ways and means to do it; it may take some time, but if we meet promptly and keep working right along, I don't see why we cannot work this program up, Mr. Secretary.

SECRETARY CRITCHFIELD: I think that is quite possible, but you will observe that there has been very little discussion, we have not had the time for it; notwithstanding the fact that notice was given that the Specialists and Chairmen of Standing Committees were expected to confine their reports to fifteen minutes, some of them have gone half an hour and sometimes a little over that. That is a matter over which the Secretary has no control; we simply make

the request that was made by resolution some time ago, and we don't like to have a good report cut right off; I wouldn't like to get up and say "Now that gentleman will have to stop, his time is up." If you are willing to go on without any discussion, just as we have gone on so far, I think we can get through in the time that is provided by the program. I want you to think it over; I don't want to have all this responsibility on my own hands.

The CHAIRMAN: If there is no other business before the Board, the convention stands adjourned until nine thirty to-morrow morning.

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Thursday, January 29, 9.30 A. M.

Vice President Killam in the Chair.

The CHAIRMAN: The meeting will please come to order. The first speaker on the program this morning is Dr. M. E. Conard.

Doctor Conard submitted the following:

### LIVESTOCK

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By DR. M. E. CONARD, *Westgrove, Pa.*

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In discussing this livestock question in Pennsylvania, I always feel a little bit at a loss because we are not in a real stock-raising State; we cannot rank as one, although we do raise some stock and should raise more. It is not altogether a matter of numbers and statistics that give us a tab on the condition of the livestock in the State, but it is the use that we are making of it, it is the way we care for it, the way we breed it and select it in order to make it most profitable to the farming interests. I say we are not a stock-raising State because we have such diversified interests. We have probably the best markets in the United States right in Pennsylvania. Those markets have been supplied very largely from outside of our own borders, particularly with animal foods.

Time is changing a little some of the sources from which we receive our butter and meat and the like, now they find other markets nearer home. The Western land has become higher in price and it brings us more nearly on a level with the Western country so far as cost of material is concerned and profit in raising it, than we were in the past. Since a great deal of our land has lost its timber, we find that we have a little more pasture land and, with the increased markets, some increased facilities, decidedly increased population, it is time for us to look about and see what is the matter and study how we can better use our livestock to our interest. We are the third dairy state in the Union, though not the third stock-raising state in the Union. The dairy interests are being drawn on pretty heavily in Pennsylvania. Of late years, or of late months, more

properly speaking, New York City has penetrated Pennsylvania almost from end to end in quest of milk. It is only a short time since the Pennsylvania Railroad would not consider hauling milk a distance greater than seventy miles; whereas, now they are co-operating with the large dealers in the cities, soliciting the hauling of milk. They are going into the northern part of the State, into Bradford and adjacent counties, and soliciting the hauling of that milk by way of Harrisburg and Philadelphia to Brooklyn, under the City of New York, and never unload it until it is in the City of Brooklyn. The railroad company has been calling meetings of farmers, some of you may have been there or may know about it, no doubt you do, and introducing New York dealers to them, saying to them that we want to haul your milk. The dealer says, "We want to buy it from you," offering them a market. They are also doing the same thing in Bedford county, I understand. The Pennsylvania Railroad is hauling milk from Titusville to Philadelphia, from a plant out there owned by a Philadelphia party; so you see it is bound to become better than the third dairy state in the Union very soon, with those markets.

Now, if we take advantage of those conditions, select and breed our livestock in accordance with the market, there is a great field in front of us and not very far away. There was a time, a few years ago, a few decades ago, when the ranchman was doing business at its height in the west and the population of Pennsylvania was not increasing. Land was very cheap in the west and we got a great deal of our livestock there, and there was, for about ten or twenty years in the last century, a period when the number of livestock decreased in Pennsylvania. Since the lumber has been pretty well consumed and other industries have sprung up in its wake calling for innumerable numbers of hungry, hardworking men, and our land does not stand up to the previous prices that we got just after war times, the western land is probably higher priced than ours now, it becomes necessary that we get the greater part of the feed for these people closer to home; so this very movement that the New York people and Pennsylvania Railroad people are making shows us that it is not in the future, but it is here, and we find ourselves now with a rather decreased number of cows over what we had in 1900, probably two or three hundred thousand less dairy cows, in the State of Pennsylvania than we had in 1900. I am glad to say that the efficiency of the cows is probably not lessened; I believe it is rather increased. The decrease is no doubt due to increased demand for animal food, meat, veal, beef and the like. That demand has made the prices high. The prices were very tempting to the dairyman to thin out his dairy, sell off such cows as were not most profitable and were ready for the butcher, and sell off all of his calves, at the same time depleting very decidedly the dairy stock of the State.

Now we find that we have about 993,640 cows in Pennsylvania and I am not going to give you a great deal of figures to remember, but what I want to do and I hope I can do it, is to draw a few comparisons of the present conditions with the past and what will be necessary in the future, so as to make us think a little more intelligently about our business. But we have 993,640 cows. They are reported on about eighty-eight per cent. of the farms; eighty-seven and one-half per cent. of the farms report dairy cattle. Now, from those

cows there is slaughtered every year 538,519 calves. Suppose the average dairy will produce eighty per cent. of their number in calves each year; I don't think they will do more, considering the loss and the many difficulties that we meet within breeding dairy cows. If that is true, we would have about 746,812 calves every year. Now if there's 538,599 calves destroyed every year, it leaves rather a small margin to replenish our dairies, considering that less than fifty per cent. of the calves raised ever proved themselves profitable dairy cows. It would leave us less than 200,000 calves to be raised every year in the State of Pennsylvania. Now then, allowing fifty per cent. of them to fall by the wayside or rather to not mature into good, useful dairy cows, we don't have more than 100,000 calves to depend on to replenish our dairy, 100,000 calves every year, 993,000 animals, would make it necessary for a cow to be useful for ten years in order that the calves could keep up the supply to where it is now, to say nothing of the increase.

That is a condition showing that we don't raise anything like enough cows to keep up the dairy stock to its present status to say nothing of taking care of the necessary and inevitable increase that we must meet. The question comes, "How are we going to do it?" The way we do it is to go out and buy them, and you know, most of you know the rest of the story. We sometimes get those that are satisfactory and we sometimes do not. In the State of Pennsylvania there are 457,192 beefeves killed every year. They don't cut any figure in the raising of stock here, because they are generally feeders that have been brought in from other sections; but there are cattle reported on eighty-eight per cent. of all the farms in the State; there are dairy cattle reported on eighty-seven and one-half per cent. of all the farms in the State; there is only a half of one per cent. of the farms in the State on which there are no dairy cattle.

Now that rather indicates that the beef business is a side issue, and it is, very frequently. Many farms have small dairies and feed a bunch of cattle as well, and in some parts of the State, maybe all parts of the State the last year or so, of which we have no statistics, the beef business has increased very largely on account of the scarcity of good dairy help, and the high price of beef has rather tempted people to put on a good many beef cattle.

Now those are just some conditions that I think, if we'd just study them out and see where we are, just see where we stand in the dairy business in relation to the demand that we are already into and a greater demand that is facing us, I think it would make it necessary that we get busy and try to increase our dairy stock. Yet the average Pennsylvania farmer is more extravagant and more wasteful with his stock than he is with anything else on the farm. Why, the livestock is the thing on the farm. There is nothing so important on the farm as livestock, next to the farm itself. They are machines, they are what we use to manufacture human food out of our rough product; and without it, the farm is no account as a farm. We can neither do the work, neither can we prepare the food for human consumption without livestock, and yet I think the livestock is subject to more neglect, to more, if I may use the term, more fool notions on the part of the owners and managers of the farm than anything else that we have under our control. We are very neglectful

of the calves that are born. We do not see that they are properly born or properly bred. We do not see that they have the proper ancestors. Now if we are facing a dairy market, and we've got to meet it, it is necessary that we should produce dairy cattle. Don't get the idea that you can get the whole thing in one. I don't mean beef cattle and dairy cattle, but I mean dairy cattle. I don't care what kind of dairy cattle you grow, but cattle that are dairy cattle, and select the ones that are best adapted to your locality, your market and your individual tastes. There are a number of dairy breeds and they are all good enough if they are properly handled, and they are all made by certain methods of breeding and selecting with a definite object in view, and the result is that the individuals have in them some certain strong characteristics, either the production of a large quantity of milk, or a large quantity of butter or possibly both, or they may be beef animals. Select the kind that suits your market, suits your individual taste and suits the environment where they are to live. You want to remember that something has made those cows what they are and it was not done in one generation. You want to remember that the Jersey cow was not made a Jersey cow in one generation; she is not a chance animal; she is the result of five or six hundred years of steady, careful selection and breeding for a definite purpose, under certain conditions that favored the development as we find it. Now we bring her out of those conditions and we give her an entirely different environment, different care, maybe different feed, and we cannot expect her to continue to be just a Jersey cow as she was before. The last artificial acquirement is the first one to leave off. I want you to get that; the dairy cow is artificial, she is the result of man's ingenuity, work and selection, and the extreme dairy characteristics that she possesses are artificial. Nature never gave us a dairy cow; we made her out of the crude material, and the artificial requirements are the first ones to lop off or leave off when she ceases to get the conditions and care that put them there.

In selecting a breed, look up the history of that breed, acquaint yourselves in some way with the conditions under which they live, the conditions that made them so, continue those conditions as nearly as you possibly can. They will acclimate to a certain extent; of course you cannot duplicate the conditions absolutely, but we want to imitate or reproduce as nearly as possible the conditions that brought them to where they are. So there is where we make a mistake in not breeding for a definite purpose. We say we will have a few Holstein cows, but the dealer does not like that milk, it is a little thin, and we will put some Jerseys in along with them, and here is a row of cattle, maybe half a dozen Holsteins and three or four Jerseys, all in the same stable. They don't fit the stable, they don't fit the conditions, you can't hire a man to feed those cattle of different sizes intelligently; you may do it yourself, but you cannot hire it done correctly. It is necessary that you observe uniformity and that naturally will follow if you select a type, a breed, and follow it up. I don't mean to keep pure breeds, but breed high grade, breed along that line and continue the same line. We don't give our cows good homes to live in. There are some good barns in Pennsylvania, of course, and they are not the ones I refer

to, but I do refer to the large percentage of barns in the State of Pennsylvania as not being fit places to keep animals at all, and much less are they fit places to handle the most delicate food that we use, the most important food that we use. They are dark, they are dirty, they are damp and they are not well ventilated. Now that applies to nine tenths of the barns in Pennsylvania. What we want is better ventilation, better light. Light will do a great deal toward purifying the barn. You want the stable so constructed that it will not interfere with the sun's rays striking the floor. If we can have free access to the sunshine into the barns so that the floors will get a sun-bath every day, and then reasonably good ventilation, much of the question is solved. The floors should be hard, some kind of hard, impenetrable material, so that liquid will not soak into the floor, and then it can be absorbed with litter and all taken out together. It will pay for the cost by the improvement it makes in the quantity of the manure; it will pay for it in the safety it gives to the product you handle—food; it will pay for it in the improved quality and condition of the atmosphere the cows breathe. You imagine a string of cows in a stable, twenty or thirty or forty poorly ventilated, breathing bad air all the time, and that means that there is an improper amount of oxygen in that air, a limited amount of oxygen, a surplus of carbonic acid gas and other gases going into that cow's lungs every minute of the day; do you think they could resist tuberculosis if it comes along, under those conditions? She is the hardest worked animal on the farm, she works 365 days in the year and twenty-four hours in the day; she is either producing you food or producing you offspring, and she needs the very best air, food and care she can get, if she is going to do her best work, if she is going to be efficient. Disease is spread very largely by traffic. There is no reason why any farmer who will go at it intelligently, cannot establish and maintain a perfectly tuberculosis free herd, if he follows the thing up closely, breeds the cattle on the farm, keeps them from intermingling with other cattle that are diseased, gives them a good, healthy, comfortable place to live and the proper amount of food, he can keep out tuberculosis. It has to come from the seed; it cannot come without it. If the seed is kept out the disease is not there. Dr. Marshall told us yesterday that this State suffered a loss of \$5,000,000 annually from preventable diseases amongst the livestock. Now he says "Preventable diseases," that means diseases that can be prevented and should be; if they can be, they should be. Let us see what that means; \$5,000,000 annually. The nine hundred and ninety-three thousand and some odd cows that are in Pennsylvania to-day are valued at a little over \$35,000,000; suppose it were just \$35,000,000, and we lost one-seventh of those cows every year from preventable disease. It was not confined to cows in his case, but we do lose it, due to some kind of mismanagement. If those diseases are preventable, they should be prevented. If we lose what is equal to one-seventh of all our dairy cows every year, in every seven years we would lose them all.

How would you like to think that in every seven years we would lose all of our dairy cows? Nothing between; everything went all right for six years, but the seventh year they would all die; that would set us to thinking, wouldn't it? We would get busy; I think

this Board would pass resolutions before night to have something done. But the same thing is going on right here under our noses and we are tolerating it, we are not only tolerating it but contributing to it right along, simply because we do not study intelligently the proper care and treatment of our stock.

The horse industry in this State is a pretty important industry. Have you any idea how it stands and what we are doing in the horse business? We have 511,812 horses on farms in Pennsylvania. That means about  $2\frac{1}{2}$  horses to the farm, including colts. Of horses that are not on farms there are 227,350. There is about half as many not on farms as there is on farms, so every farmer has a sale right along for just half of his horses if he has the right kind at good prices. Now, to meet that demand in 1909 there were 30,981 colts raised in Pennsylvania, yearlings. Now, without asking you to remember too much, that would require every horse on the farms only, and not in town, to live seventeen years, work seventeen years, in order that many colts every year would keep up the supply on the farms. Now, we have a market for 227,350 horses outside of that. Now we are keeping up the supply of horses on the farm, we are not beginning to do it. And then we go out and buy the rest of these horses at anywhere from sixteen to twenty-five cents a pound. We raise milk at about a cent and a half a pound or a little more, a cent and a half or two cents a pound, to pay for it with. If we raise beef we give three pounds of beef for a pound of horseflesh. If we raise pork, we give two and a half or three pounds of pork for a pound of horseflesh. If we raise wheat, we give one bushel of wheat for about four pounds of horseflesh; it is the highest priced flesh on the farm. We have just as good conditions to raise it under here, as they have in the west. We have not done it because we were not educated to it, our fathers didn't do it, but people who were stock people in this State were tempted by the Western lands. This country was depleted of its stock raising people by the Western country offering them better fields, in the past. If we will study it up and get the right kind of horses, there is a fine chance for a very good market.

Swine are reported on about 65 per cent. of all the farms in Pennsylvania; that averages about 7 hogs per farm. The milk industry is rapidly pressing back the hogs, displacing them to a certain extent, because when the milk is sold, it is not easy to raise them. There are quite a number of people in Pennsylvania who are trying to raise hogs on alfalfa, without milk. I cannot report just what progress they are making, but that is a movement that is being worked out now, a plan that is being worked on, and I hope that we will have something good to report in the future on that line. Alfalfa seems to be a specially good feed for hogs, and where they can be pasturized it may result in being a profitable way of raising them without milk.

MR. FENSTERMAKER: Will you allow any questions on this paper now, Mr. Chairman?

THE CHAIRMAN: I think we will take that up a little later and get along with this program as far as we can. There is a great deal on the program for this forenoon. We called this meeting to order

when there were not as many present as now, and I think it would be a good idea to call the roll.

(The roll was called).

The CHAIRMAN: Now, gentlemen, we will proceed to the next subject on our program, which is Poultry, by Mr. Wittman, of Allentown. I wish to announce, however, that this Roads Committee, consisting of myself, Mr. De Witt, Mr. Rodgers, Mr. Fenstermaker and Mr. Blyholder, will meet at eleven o'clock instead of this afternoon at two o'clock; we will meet at eleven o'clock this morning at the office of the State Highway Commissioner.

Mr. Wittman presented the following report:

#### REPORT OF COMMITTEE ON POULTRY

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By W. THEO. WITTMAN, *Allentown, Pa.*

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Poultry conditions and poultry markets have been highly satisfactory throughout Pennsylvania this last year. I am more than sorry that my report this morning is on paper; I wish, instead, that I could take this Board out and just let them have a glimpse, through the medium of their eyes, at the poultry industry as it looks today; I think it would be very much more satisfactory. There is more poultry than ever; the prices for both eggs and market poultry are not only steadily on the increase, but have been exceptionally high the past twelve months. Producers or growers have received this last year (Nov., 1913,) as high as 67c and 70 per dozen for their eggs and 24c to 28c a pound for their market poultry. A 60c price for eggs and an eighteen cent price per pound for poultry has not been uncommon. Such prices and the insistent demand for eggs and poultry at these prices has naturally added a great stimulus to the already great interest in poultry growing and it is a safe guess that more people than ever will take up poultry farming this coming year. That the dissemination of a knowledge of improved or better methods of poultry breeding, poultry housing and poultry feeding is bearing abundant fruit, is proven by the fact that this year again the prices of eggs broke immediately after the Christmas holidays, or, in other words, this year's experience was a repetition of the last few years in that eggs brought the high prices in October, November and December and that probably the former high water mark prices of January and February eggs are gone forever.

This passing means that, as a result of this knowledge of a better breeding, feeding and keeping, hens are laying earlier in the year or winter. Also, improved knowledge and methods are responsible for a great increase in the number of successful and permanent poultry farms in the State and although there must be ten such where there was one a few years ago, a much smaller per cent fail and go under. There has also been a great deal of breeding going on for increasing egg production and Pennsylvania as a State has been exceedingly fortunate in having had moved within tis territory this last year its first egg laying contest:—that conducted by the Philadelphia North

American, at Thorndale, Chester county. Also, in having certain parties in Lancaster county buying and bringing into the State ten birds that won in the late Missouri Egg-Laying Contest and parties in Monroe county bringing in the second prize hen in the Connecticut contest. These birds were bought strictly on their merits as layers and cost very large sums of money and yet were probably worth all they cost as such stock cannot help but greatly aid Pennsylvania growers in their efforts to upbuild large flocks of heavy layers.

The State has now some 80 organized Poultry Associations and holds annually over 100 poultry shows of merit. The agitation for a law for this State requiring inspection of poultry and poultry products is being carried on more vigorously than ever and it is to be hoped that such law may soon be a fact.

In this connection, abstracts from an article printed in a late issue of the *Rural New Yorker* and endorsed by the Editor of same, may be of interest. This article was by Dr. Robert Meade Smith (of Gwynedd, this State) late of the University of Pennsylvania: "On page 785 you print without comment a letter signed 'M. B. D.' which deals with the marketing of infertile eggs as a 'bunco game' and if the opportunity offers, advising the egg producer to work it and work it hard." I wish to take exception to this and on the contrary, with many others, I believe that the marketing of any but nonfertile eggs should be prohibited by law. An infertile egg produced under sanitary conditions and protected from external infection is a stable, organic, chemical compound, capable of withstanding prolonged high temperatures. A fertilized egg, after exposure to a temperature even below that of inoculation, is a living animal organism as long as germination continues. The germ feeds first on the albumen and consumes that; the yolk or yellow is only absorbed about the twentieth day, and if it could rot or putrify or spoil, we would never have any little chickens; if anything rots in the egg, it is the germ or embryo itself and we have had a false notion of what constitutes a rotten egg. When the germ dies, as die it must when the temperature is reduced or when handled in transportation, the egg then becomes dead animal tissue and as such inevitably undergoes putrefaction when its temperature is again raised.

Until the compulsory inspection of poultry plants is compelled by law, which will be coincident with the prohibition of the sale of infertile eggs, egg producers, for their own interests, apart entirely from the criminality of distributing one of our most important foods, sure sooner or later, to become unfit for use, should be encouraged to produce only nonfertile eggs. No one claims that nonfertility is a guarantee of a perfect egg, but it is one of the most important factors; but, mere freshness is no guarantee whatever as to the quality of a table egg. Eggs laid in the manure pile or in the stable by hens fed on garbage and living and wading in all sorts of filth, even when new laid, are not fit to eat and, when you add to this, that the eggs may have been exposed to excessive or incubation heat and have been partly incubated, all conditions have been greatly aggravated when, in addition, the eggs were fertile to start with.

I would like to strongly impress upon this Board, and through it, the farmers of this State, that the first and easiest way to improve the quality of our market eggs and at the same time save to the

people of the State millions of dollars' worth of eggs now annually thrown away as unfit for food, is to shut up all male birds and to keep them shut up, or better yet, caponize them or kill them when no more than two to three months old, and, in their place, secure good breeding males, bred for the particular purpose the flock is being kept for, and then handle such males as all good breeding males should be handled. Outside of this continued experiments have proved that pullets will show and develop better, that hens will lay better, will live longer, be in better plumage and be better content in the absence of the male. Finally, while some people are still knocking the poultry industry and worse, with the prices of this last year and the indisputable evidence that more and more people are making good as poultry keepers, this will eventually have to disappear.

The CHAIRMAN: Gentlemen, you have heard the reading of that very good paper on poultry and I hope the subject will be taken up for some discussion later, though we hardly have the time now. The paper will be received and placed on file. I will now ask to be excused.

Vice President Wilson took the Chair.

The CHAIRMAN: Next on the program is "Police Protection to Rural Districts," by Captain Groome.

Captain Groome then presented the following paper:

### POLICE PROTECTION TO RURAL DISTRICTS

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By CAPTAIN JOHN C. GROOME, *Superintendent of State Police*

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I felt very much honored when I was asked by your distinguished Secretary, Mr. Critchfield, to address you today on "Police Protection to Rural Districts." There are so many reasons why the rural districts should have proper police protection and so many benefits the rural communities would derive from a sufficiently large State Police Force, that I am afraid I cannot do justice to the subject.

So that you may understand the manner in which the Force is operated and for the benefit of some of those present who may not be familiar with the work of the Department of State Police, I want, first, to give you a brief outline of the organization and the work of the Force, and then I will explain some of the benefits the rural districts derive from its services at the present time.

This Department, and the State Police Force, were created by an act of the Legislature in the Spring of 1905. One of the shortest bills I am told that has ever been passed by the Legislature. As far as the organization of the Force went, the act simply provided that the Superintendent should be appointed by the Governor, designated the number of men and fixed their salaries; the details of organization, selection and examination of applicants, equipments, arms, uniforms, duties, location of the men and rules and regulations governing the Force were all left to the Superintendent. The act then said the members of the Force "were empowered to act as forest, fire, game

and fish warden" and "wherever possible to co-operate with the local authorities in detecting crime, apprehending criminals, and preserving law and order throughout the State."

The force, consisting of 8 officers and 220 men, was organized, equipped, mounted and ready for duty January 1, 1906. These 228 men were selected from over 1,000 applicants, after a careful mental and physical examination, and a thorough investigation of their characters, morals and past records. Only men who were qualified physically, mentally and morally were selected. And I may add that since the Force was first organized, the same care has been exercised in the selection of the men, and only those qualified in every way have been accepted. New men are enlisted as privates only, as all promotions are made from our own ranks, for merit, after a strict competitive examination. As soon as enlisted, all recruits are sent to the training school at the Pottsville Barracks for four months' schooling before being allowed to go on patrol duty. During this time the recruits daily attend a school, conducted by the commanding officer, where they are instructed in the duties of a State policeman, the criminal laws, the game, fish and forestry laws, and the care of horses, equipment, etc. They are also drilled daily, both mounted and dismounted, and are given constant target practice. If at the end of the probationary period they have proved themselves efficient they are assigned to their permanent stations, and during the balance of their term of service they must attend the Troop Weekly Schools, conducted by the Troop Commander, where they continue to receive instructions in the laws of the Commonwealth, detective and general police work. All punishments in the Force are made by fine or dismissal, after a fair and impartial trial by court martial. The charge, specification, evidence and sentence of the Court are submitted to me, as Superintendent, for approval or disapproval and this decision is final. If a man is once dismissed from the Force he is never allowed to re-enlist, and no influence can either get an undesirable man on the Force, keep a man on the force who has proven himself unfit, or have a man reinstated who has once been discharged. Politics or personal interest have never influenced a single appointment. If the applicant is qualified in every way, when a vacancy occurs, he is enlisted, if he is not qualified he can never be enlisted.

The barracks and stables and the four troops composing the Force are located in Pottsville, Wyoming, Butler and Greensburg respectively. By this distribution there are two troops in the eastern end of the State and two in the western end. Daily mounted patrols from each troop cover the roads within a radius of 25 or 30 miles of their home station and afford protection to the residents within that radius; but in order to afford all protection possible to communities more distant from the barracks, each year from 45 to 50 sub-stations, consisting of three men each, are established throughout the different counties and are kept out so long as the appropriation available for this purpose lasts. Two men from each of these sub-stations daily patrol the roads within a radius of about 25 miles, leaving the third man on duty at the station ready to answer any calls for assistance in the immediate neighborhood, and these patrols from the barracks and sub-stations combined cover hundreds of miles daily and afford protection to many localities that are practically without

other protection. During these patrols the men maintain law and order in their districts, render assistance upon the request of any citizen, investigate and report on any crimes that have been committed, and enforce the game, fish and forestry laws, and act as wardens for these departments. They have assisted in extinguishing innumerable forest fires and have made many arrests for violations of the game laws, and have frequently assisted the Department of Health in maintaining quarantine during an epidemic of some contagious disease. One quotation from the Game Commissioners' Report for 1908 will show the assistance they were to that Department:

"The greatest assistance I had in enforcing the law has come from the State Police. Every request from this office for help has been promptly honored. In my report of last year I cited the fact that during the year 1906 fourteen of our men were shot at, seven shot and four killed by foreigners, with not one of the perpetrators punished. At this time I do not know of the wounding of a single one of our men this year. This changed condition in my opinion is due to the creation of the State Police and to the unhesitating, determined and persistent pursuit of wrongdoers of all classes by the members of that Force."

In addition to the regular and special patrols, some men from each troop are constantly detailed for detached service for detective work, either in assisting Sheriffs, District Attorneys or Chiefs of Police in securing evidence, in locating and apprehending persons known to have committed some crime, or in ferreting out crimes and arresting the criminals.

You now have an idea of the method pursued in organizing the Force, the manner in which it is conducted and the general duties of the men. Unfortunately the number of men is so small, and the Legislative appropriation so limited that the usefulness of the Force is greatly handicapped, as, with the present force it is impossible to comply with one-third of the demands for assistance, or to afford protection to more than a small proportion of the rural communities that are constantly asking for details of our men.

To give you an idea of the demands made upon the Force, I may tell you that during the year 1912 we received 2,592 requests for assistance, nearly 8 a day for every day in the year. These requests came from Judges, Sheriffs, Mayors, Chiefs of Police and private citizens, all of small towns, hardly a request having come from the large cities or towns that had police protection of their own. Contrary to the opinion of a large number of residents of this Commonwealth who think the State Police are about the same as a fire company, sitting around the barracks or fire house, waiting for a riot or fire call before going out, the members of the Force are daily on duty patrolling the roads all over the State, as you can understand when you realize that 200 men travelled over 491,000 miles last year. In six years the Force has covered 2,642,000 miles and made 20,567 arrests, a record it would be impossible to achieve if the men were used for riot duty only.

And I should like to say just a few words here in reference to riot duty. As you know riots are usually the result of a large number of idle men, who have been thrown out of work by a strike of one sort or other, and who finally through anger, idleness and more or

less alcohol, start a disturbance. At such times the local authorities cannot afford all the protection needed, in many cases they have really no police protection except the usually inefficient, lazy and sometimes criminal constable, with absolutely no experience in police work, and the old sheriff system of swearing in deputies to assist in enforcing the law having proved its utter inefficiency time and again, the State Police are called upon as a last resort. While I consider the greatest benefit derived from the State Police is the prevention and reduction of crime in the rural districts, unfortunately the most sensational service is in checking riots caused by strikes or other industrial disturbances, and as we consider the merits of a strike have nothing to do with the maintenance of law and order and do not give a mob the right to defy the law, destroy property or imperil the lives of innocent people, and as our men are efficient, fearless and absolutely unprejudiced in enforcing the law at all times, we incur the enmity and opposition of certain labor elements, although I am glad to say the more intelligent English speaking laboring man now realizes that the State Police is quite as much benefit to his family and himself as to his employer.

The labor agitators claim, that the members of the State Police are employees of corporations and are only used to intimidate the laboring classes, is disproved by our own records which show that during the year 1912, out of a total of 1,144 arrests for over 80 different crimes, only 10 were for rioting, while 17 arrests were for rape and 23 for murder. The Force made as many arrests for horse stealing as it did for rioting, and three times as many for trespassing and five times as many for burglary, and none of these crimes, except rioting, were committed in towns or cities, but in the rural districts.

There are thousands of acres of farming land in different counties of this State where a uniformed officer of the law has never been seen, miles and miles of good roads that are unpatrolled and large groups of settlements without police protection of any sort. These populous settlements have sprung up all through the State in the last ten or twelve years, and yet they have no more police protection today than they had before the towns were built, and while the inhabitants of these new towns, and the surrounding farms, have used their combined influence to secure all the modern conveniences for their localities such as the telephone, electric lights, water supplies, gas, etc., they have made no effort to obtain the one thing that is more important to their families and themselves than all these put together, and that is protection to their women, and to life and property in their neighborhood.

To my mind the most unpardonable crime in the whole category of crimes is that of RAPE or ATTEMPTED RAPE. According to law the most serious crime is MURDER, as that is the only one that is punishable by death, but the victim of a criminal assault, unlike the murder victim, lives for years, frequently a mental and physical wreck, and while it should be a matter of mortification to every law-abiding citizen of this Commonwealth that this particular crime occurs so frequently in the State, yet we cannot close our eyes to the facts, and records of this Department show that we have made over 150 arrests for Rape or Attempted Rape since the force was organized, and God knows how many times this crime has been committed with-

out being reported to this Department. And all of these crimes were committed and arrests made in the rural districts. Not having a sufficient number of men to properly patrol more than one quarter of the State, our men are apt to be many miles distant from the scene of the crime and usually several days elapse before they are even notified that the crime has been committed, and under the circumstances I consider it remarkable that we have been able to make so many arrests and secure so many convictions.

Apart from security to life itself that the proper police patrols would assure the residents of the rural districts, they would also afford protection to the hundreds of thousands of dollars' worth of personal property and livestock owned by the farmers and at present without the slightest protection. In these days of automobiles and hundreds of miles of good roads the unprotected property in the rural districts is almost at the mercy of the professional burglar, and although the few men we have by their knowledge of country life and its conditions and the intelligent detective work resulting therefrom have been able to control the criminal instincts of the lower classes to a certain extent, and to quickly and correctly ferret out many of the country crimes, to successfully protect the lives and property in the rural districts, we must have more men and more money. Many more men and sufficient money to maintain them. With a sufficiently large Police Force there should not be a distant or sequestered farming community in the State where life and property would not be as safe as it would be in any large city. It is impossible for 220 men to properly patrol 45,000 square miles of territory, and while they do cover as much ground as possible, as our records of about 500,000 miles a year will show, our men cannot be in more than one place at a time nor can I make one man do the work of six.

I consider the failure of the last Legislature to increase the Force and provide sufficient funds for its support in the rural districts, a direct invitation to criminals and disorderly characters and I hope our appeal to the next Legislature for more men will have the support of every farmer in the State, for farmers really derive more benefit from the State Police Force than any other class of citizens in the State, as it means to them protection to their homes and families in localities where there is no adequate police force and are too far removed from large centers to obtain quick aid in case of necessity; assistance in case of fire, flood or other trouble and knowledge of protection within easy call; aid in the preservation of the game and fisheries by the detection of the violators of law through constant patrol in unfrequented and isolated sections; the enforcement of the liquor laws and the suppression of illegal resorts in isolated places, and the better and more intelligent protection of all Rural Districts, than is now afforded by local constables, by an efficient police force, always on duty, trained to the service and flexible to its movements.

THE CHAIRMAN: Next on the program is the report of the Meteorologist, Mr. E. R. Demain, of Harrisburg.

SECRETARY CRITCHFIELD: I don't think Mr. Demain is present.

**THE CHAIRMAN:** Next is the report of the Mineralogist, Dr. Isaac A. Harvey, of Lock Haven, Pa.

**SECRETARY CRITCHFIELD:** Mr. Harvey will not be here and has not yet sent in his paper. I would be very glad if the Chair would entertain a motion that if Mr. Harvey's paper is sent in, it be printed with the proceedings of the meeting.

A motion to the above effect was then adopted.

(Subsequently the report was sent to the Secretary, and is as follows):

### REPORT OF MINERALOGIST

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By DR. ISAAC A. HARVEY

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In a former report, I referred briefly to the gas and oil aspects of our State, and suggested the probability of new discoveries of these important factors of domestic use, commerce and manufacture; so that any verification of my forecasts in this direction would be of some interest to you and indicate the still wider possibilities that invite investigation and effort with reasonable prospects of success.

A noteworthy instance in this connection is as follows: Last summer I was employed to examine a gas well, drilled in 1902 in a northern township of Lycoming county, and while this well never produced a strong current of gas or of sufficient volume to be of any immediate commercial importance, yet there constantly issued therefrom a certain limited flow of the fluid which is even now coming forth and which betokens that in that locality there is a good prospect of finding a paying well, if the necessary drilling be done. At a depth of 1,686 feet the well gave a moderate flow, that, being lighted, rose to the height of 8 or 10 ft., but as the well was never "shot," as the saying goes, with glycerine or dynamite, the actual force and volume of the gas beneath was never ascertained or even approximately conjectured; and I was informed that the driller, having penetrated to the proper depth, that is, through the Catskill Red Sand Stone, No. 9, of our State terminology, into the Chemung Rocks No. 8, insisted that a greater volume and a true normal current or reservoir of the gas would be found at a greater depth, and that the weak current that was issuing from the hole would very shortly cease and its source soon be exhausted. Therefore, being opposed to the shooting of the well (which, in reality, had reached the proper horizon of the gas) he continued boring until the well reached a depth of 2,400 or 2,600 feet beyond the depth and into rocks wherein a good flow of gas could in no sense be reasonably expected. The well was "bridged," as they called it, by plunging therein a bunch of brush and thus partly closing it; but the gas has continued to issue in a greater or less degree during the entire eleven years since it was put down; and recently, as one interested in the prospect, I was notified by letters that more gas is now coming from the hole than it showed when I was there in the summer.

Now the one very evident mistake was the omission, the oversight in not putting a shot into the well with nitro-glycerine at 1,686 feet whence the gas was struck and arose; so that, if there was any considerable body of gas of economic value within a short distance of the bore hole, the effect of the explosion of nitro-glycerine, at the proper depth, would have been to increase the flow of gas by shattering the surrounding rocks and enlarging the fissures or crevaces through which the limited amount of gas had come to the surface and leading to the original body of gas, which, if present in considerable volume, might have afforded a flow of commercial importance and value. In short, the drill may have penetrated within a few feet or yards of the original body of gas and, in that event, a shot would probably have opened an outlet for the same into the bore hole and thence to the surface.

The driller was mistaken in the first instance, in not recognizing that he had reached the rational horizon of the gas at the depth of 1,686 feet and in the Chemung formation whence most of our gas in this State is derived; but the most important fact connected with the experiment is that the gas was found not west of or beyond the Allegheny Mountain, as in every instance where it has been proved efficient and of economic value, but the location is 2 or 3 miles east or southeast of the Allegheny Mountain, thus demonstrating the actual presence of gas near or along the eastern slope of the mountain, not as yet, however, ascertained to be of extensive importance or value, but proved that there has issued from rocks east of the mountain a permanent though moderate flow of gas that justifies a further and conclusive investigation. The course of the Allegheny Mountain, as it enters this State from Maryland and along the Somerset county line, is almost due north and south; that is, from north 5 degrees to 10 degrees east, and thence as we follow it through the State its course is deflected eastward so that through Centre county its trend is almost due northeast and through Lycoming a portion of its distance and near the location of this gas well is about north 65 to 70 degrees east. Thence into Sullivan county its course is nearly due east and west. Therefore, when we speak of a locality or section west of the Allegheny Mountain we refer to the course of the mountain through Centre and along Cambria and Somerset counties, and when we speak of this mountain in reference to Clinton or Lycoming county, as to the location of the oil and gas fields, we should say northwest of the mountain; while, indeed it would be more proper to say, north of the mountain, when speaking of its trend through Lycoming county. But the rocks that form the mountain are the same continuously from the Maryland line to its entrance into Sullivan county where it almost loses its well defined crest and seems finally lost as we approach the Anthracite coal fields; and even there, the traces of the old Allegheny can yet be discerned. Hence the conclusion is logical that flowing wells of gas are possible of location and commercially important before we reach the eastern escarpment of the southeastern escarpment, as the case may be, or even the foothills of the Allegheny Mountain; and the effort will be made to substantiate this prognostic or theory under the direction of your humble servant in the region of the gas well described, and means are being secured for that purpose.

Again, the gas wells in the northwest counties are becoming weaker and evidently are slowly but certainly exhausting themselves, and in the Bradford region, McKean county, as elsewhere, some wells are being put down to a very much greater depth than the usual gas and oil horizons, and into and through the formations beneath the Chemung and Catskill rocks wherein, heretofore, these deposits have been fund. In fact it has been stated to me that the Bradford people will venture to reach even the Oneida sandstone, if they shall not encounter a flow of gas prior to reaching that depth; in hopes, also, that some unknown, unsuspected or unspeakable lead of gas may respond to their efforts and allay the misgivings and apprehensions that now beset them by reason of the impending exhaustion of gas from the wells that have long supplied the demands but are now threatening to cease altogether. One hole has recently been put down more than 6,000 feet and far beneath the usual and well-known gas horizons, but has failed to respond favorably to the drill. Apart from the foregoing intimation of gas in or near the Chemung formations and close to the eastern or southern base of the Allegheny according to location, what might occur if we were to drill, not 6,000 or 7,000 feet, as is being done in McKean county, but if we begin, geologically, say 10,000 or even 15,000 feet lower than the McKean field and penetrate the limestones of our No. 2, or lower Silurian formations, which in Ohio and Indiana afforded for some years as astounding flow of the fluid which is now so needful for present and future use. No one can forecast what may be learned or acquired in this direction by judicious investigation, inasmuch as so many formations have furnished immense flows of gas in the various states of our Nation and in the several nations of the earth, and no human foresight can predict what measure of success may respond to the efforts that may be made by testing or drilling those formations that only present to our vision or surface inspection, a quiet and immobile repose of rocks, strata and structure, seemingly undisturbed even in their remotest depths, by the presence, pressure or agitation within them of the gaseous fluids that, when released, will manifest their power and vigor and potency and effective energies for the application of man to his own ends and varied accomplishment in a commercial way.

But the ways of Providence, for Providence it is, are inscrutable and past finding out and the thoughts of men are widened with the process of the sun. The wastefulness manifested in so many departments of our national life and in our appropriation of the gifts of nature and nature's God, must "give us pause" when we view the menace that is implied in the exhaustion of timber and of gas and oil and the most serious and impressive lessons of National, State and individual economy are yet to be learned by severe experience and privation.

#### SOME FIGURES ON CLAY PRODUCTS

I have noticed in the recent reports of the U. S. Geological Survey, that the total clay products in the U. S. diminished from a value of \$170,115,974 in 1910 to \$162,236,181, in 1911, a decrease of \$1,879,-793, and the report for 1912 does not show any improvement. This may be due to the advance in the efficiency of cement which has

very largely invaded the domain of structural work of all kinds, and possibly in a minor sense, may be ascribed to some fluctuations in general business matters and a decrease in the average building and structural enterprise and development. From 1910 to 1911, Ohio increased over a million dollars in her clay products, while, unfortunately, Pennsylvania decreased nearly two million dollars; the same condition seems to be prevalent yet, unless the report for 1913, when it is issued, shows improvement for our State, which, from vague intimations at hand, seems probable.

An interesting variance is noted in the increase of the common brick product in the U. S. from eight and a half billions in 1902 to more than ten billions in 1906, and thence back to eight and a half billions in 1911; and the same inflexible law, seemingly begotten by the cement industry which more than holds its own, and, indeed, is crowding the others, is destined to continue. Wherefore, lookout for cement in the future and study your limestone deposits as jutting forth on your farms and hillsides. Find out what they are. In other figures we note that vitrified paving brick are holding their own; in truth, are increasing in demand from 1902 to date and on the average will compare favorably with any other clay product in a progressive way. As applied to street purposes, cement impair or retard the advancement of vitrified brick. Last year, my report set forth the excess of Ohio's production of certain clay products and her apparent advantage over our State even in securing some of the eastern markets; and a case in point was presented to me last September, when I was employed by some New York gentlemen, associated with some Pennsylvania people, to make a report on a Red Shale deposit in the vicinity of New Hope, Bucks county, where some developments and tests had been made of the Red Shale, with very gratifying results. However, a certain Ohio geologist came to that section and, after a somewhat hurried examination, have given the property a doubtful character and aspect, and indicated for it a very limited promise of success. Upon my examination the deposit of some hundreds of acres of Red Shale, as controlled by the people that employed me, to be of excellent and exceptional quality for the manufacture of building and street paving brick; and in truth, the best deposit, in some respects, I had ever examined, not disparaging the many prosperous establishments elsewhere in the State where the raw material is first class and the products justly acceptable in market.

Upon some further tests, made after my visit, the value of the clay and shale was demonstrated beyond all peradventure or question by an Ohio Ceramic Engineer; and it seems to me that the purpose of the geologist from Ohio, in unison with the desire of those that sent him to New Hope, was to eliminate the Red Shale deposit thereabouts (of almost limitless quantity) from any possible interference or competition with the Ohio trade in the markets of Philadelphia, New York or other Eastern cities; for the product of this New York deposit can be delivered to said Eastern markets, with a good margin of profit for the cost of the Ohio brick without profit, the difference being in the freightage. There is a marked advantage in delivering brick 40 or 50 miles, over delivering them 400 to 600 miles; so that the Ohio brick makers were sensible of the very distinct advantage

that a plant at New Hope would have over a plant somewhere in Ohio; at least, when it came to the competition for the trade of Philadelphia, New York, Boston, etc.

#### GRAPHITE OR PLUMBAGO

An industry, formerly of minor importance and now emerging from obscurity, is the production and use of graphite, which, in portions of the State, at least, merits more attention than formerly. The increasing demand for various uses, which I cannot set forth in detail, indicate a promising future for this mineral. The State is publishing a series of reports under the direction of The Topographic and Geologic Commission, and, I believe, the volumes thus far issued may be obtained from Mr. Richard R. Hice, State Geologist, Beaver, Pa., the last volume, No. 6, describing the graphite deposits and production in this State. Samples have been sent to me, purporting to be graphite, but which were in reality only black slate, of which the analysis did not reveal any of the qualities of ingredients of graphite.

In this connection, it is wise to express an admonition with reference to promoters who invade all the towns and townships in this State with the motive of getting something for nothing, leasing mineral properties, making or having made on the same, false and fabulous reports, and then trying to dupe the moneyed men or capitalists in the cities by leading them into an investment in mineral values, so called, which have no actual existence but are merely the figments of falsehood and deception. There are some promoters that are sincere and seek to make a profit justly by handling minerals or other properties; but a great majority of men of this kind are not to be trusted, and it is well to give them a wide berth. As a rule, beware of promoters and let me say, from my own experience, that three out of four of them, as far as I have discovered, are not honorable or trustworthy.

There are many of our mineral deposits that deserve, from even the farmers, more than incidental study and attention, so that such values as may be on the farms may be readily discovered and understood and the farmer's intelligence in this direction will be of real worth to him in event of locating any mineral deposits, but a certain moral and mental interest also attaches to this knowledge, which affords diversion and pleasure, while he may be informed when the "false prophet or prospector or faker" happens around to rob him of his possible mineral values, as I have seen so often done, because the farmer and others don't know anything about the rocks and minerals.

The U. S. Government issues each year, 2 volumes of "Mineral Resources;" one descriptive of the metals, the other of the nonmetals, and an immense amount of data and information therein is of practical import to the farmer, as well as to others. These reports, as many more may be obtained from the Director of the Geological Survey, Washington, or perhaps, your Congressman will send you any volumes you may request, as the same are for the people and those that appreciate them. I suggest and urge the wisdom of your sending for these reports and reading them.

May I not, as incidentally heretofore, be indulged in a digression that has so often presented itself and demands more than hitherto, the consideration and study of all well thinking people? Many times it has been said to me, and perhaps by reason of some exceptional discoveries and wide experience along my line of work. "You ought to be wealthy; worth half a million," etc., and I have sometimes thought, that having enriched others by fortunate developments and uncovering unknown mineral values, I should have a competency by this time; but in a reflective sense and in retrospection, the possession of half a million, would enable me to buy in a group, a Webster, Clay, Lincoln, Garfield, Grant and McKinley and yet have remaining sufficient to live my years on "easy street"; but would such a reality of finance or property place me on a parity with any one of these noble Americans? Better, it seems to me, to have earned justly half a million and not possess or enjoy it, than not to have earned or made honorably half a million and yet possess and enjoy it; exacted, indeed, from honest toil and integrity that are struggling along; for it is true, as says Ruskin, that "much treasure is heavy with tears as an illstored harvest in an untimely rain, and much of our gold is brighter in the sunshine than in the substance"; and you readily see the figure and its application. But it is not figurative to say that the element of duplicity, a little lying, exerts more than an incidental influence on our national life and character and commerce than will insure general happiness, and it is an unsolved question, a problem, whether a half or more or less than half of our business is conducted honestly and whether more than a moiety of business men are moved by a spirit of honor and integrity. Facts and reflection indicate the trend of these things and it has been said that most of our wealth in the hands of those who have not earned or justly gained it, "is but the gilded index of a far reaching ruin."

Is it not an ominous fact that, as a nation, we occupy a conspicuous position in the eyes of civilization for having made more of a crime of business than any other nation in ancient, medieval or modern history; due to our exceptional intelligence and monetary skill and sagacity. And have we not perfected in a way the exact science of stealing and graft? Do you say this talk is pessimism? Nay, it is Jeffersonism; it is Lincolnism; it is Americanism. Jefferson, viewing the perfidy of the nation and its presumption and corruption, even in his time, exclaimed—"I tremble for my country when I remember that God is just and that justice will not always sleep;" and Lincoln echoed the same thought in his life; made it manifest as a living principle in his character, spirit and deliverances; namely, that we may not always refuse to bow to the will of God in our policies. Jefferson was logically the political progenitor of Lincoln, and Lincoln the political legatee or descendant of Jefferson, and if you question this assertion, study the analogy of the two lives and learn the harmony of sentiment that existed in their records, even though half a century part.

Gladstone has said, and with the most pertinent truth, that the only solution of great national questions is by the spirit and principle and doctrine of Christianity; and, in view of these things, gentlemen farmers, among whom no infidelity can have a resting

place, the thought must come with most material relevance and force, that unless we, as a nation, exist in the providences, purposes, and promises of the Almighty, which, to my mind, are all yea and amen in the Master and his Gospel, then we have no right, as a nation, to exist at all; and the world of mankind has a right to expect, nay demand of us a more upright and honorable national life, in respect at least to our business, politics and civic affairs. The influence that will amend and rectify these evils abides in the farmer homes of the nation; and whilst you have no disposition to vie with "frenzied finance" or enter the lists in rivalry with frantic business, nevertheless you are as much as any others, the victims of deception, and the objects more than others of envy. Albeit, you may rest in repose and contentment upon the sure basis of an honest calling and untrammelled probity and patriotism and give to all objurgation and detraction the benediction of a clear conscience, the blessing of an honest, earnest life and calling and purpose. For,

"Envy will merit as its shade pursue;  
But as the shadow proves its substance true,  
Envied worth, like the sun eclipsed, makes known,  
The opposing objects grossness, not its own;  
For when that sun too powerful beams displays,  
He draws up vapors that obscure his rays;  
But e'en at last those clouds adorn his way  
Reflect new glories and augment the day."

The CHAIRMAN: Next is the report of the Apiarist. Mr. Klinger made his report as follows:

#### REPORT OF APIARIST

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By MR. H. C. KLINGER, *Liverpool, Pa.*

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Mr. Chairman, Ladies and Gentlemen: If it were possible for me to take you into one of our up-to-date apiaries in the State, I could make my report a great deal more interesting; so, in accordance with the instructions given on the program, my report must necessarily be short, and this statement may relieve you of the fear that you might get stung.

Looking back over the year just passed a few things that are worthy of notice have taken place in the apicultural world. The year 1913 will be recorded in bee-history as having produced the largest crop of clover honey known for many decades. This is, however, true more of the whole country than it is of our own State. White clover was more abundant in this State than it had been for many years, but on account of some adverse atmospheric conditions during the early part of its growth, it failed to secrete much nectar; and later on the flow was cut short by the severe drought. It has been noticed that blossoms will secrete nectar only under certain conditions of the atmosphere. Frequently there is a profusion of flowers and bees seem to be entirely indifferent to them.

Two conditions necessary are a certain temperature and a certain amount of water in suspension. A day that is considered disagreeably warm and "stuffy" is always welcomed during blossom time because on such days bees will literally roll in the honey. These conditions vary so much, that while parts of the State report large flows of honey, others not far distant, report almost entirely failures even with an equally abundance of honey-bearing flowers. One of the remarkable records of the year is that of Dr. C. C. Miller, of Marengo, Illinois. He is a man 82 years of age, who has been in the apiary work over 50 years, and who appears to cap the climax of a useful career by securing a record breaker of a crop. His apiary contains 73 colonies from which he took nearly 20,000 pound sections of honey, or an average of 266 pounds per colony. His best colony stored 402 sections. This is not only remarkable in the production of honey, but in the fact that here is a man, at an age when most men have retired from work and usefulness, who still finds pleasure in his vocation and is active besides in contributing articles regularly to the bee-journals. The year 1913 has brought about no particularly important inventions, although many improvements have been made in the different machines and devices used.

Among the methods that are new is the unique way of introducing queens directly by the use of smoke, thus doing away with the loss of so much time and the danger of carrying infection of diseases through the shipping cage. Late in the season has come to no ice a method of re-queening without de-queening. This has been practiced by several of our specialists with remarkable success. If this will work as well for the average bee-keeper as it has done in the hands of these men, it will simplify one of the greatest problems.

By way of explanation, I might say that the greatest trouble that we have in re-queening a colony is usually to de-queen it first and find the old queen. Our old system makes it necessary to de-queen a colony at least 24 hours before we introduce a new queen. The new system which these specialists have been trying is simply to take a new queen, raise the old colony and put about 3 puffs of smoke, strong smoke, into the colony so as to demoralize the bees, and in about ten minutes release the new queen at the entrance of the hive and follow her with another heavy puff of smoke, and that is all that is necessary. While it does not produce 100 per cent. of success, that method has been found, in the hands of these men, to be as successful as taking out the old queen first and then afterwards introducing the new queen by the shipping cage. It is a very simple process. It is now generally conceded that the Italian bee is the best all-around bee. It is the best worker, one of the gentlest to handle, and most immune to foul brood diseases. Cases are mentioned where the introduction of an Italian queen into a colony of diseased black bees has served to cure the colony of the disease. But with the different kinds of hives most commonly in use, it is impossible to re-queen from the fact that it is a difficult task to open a hive to find an old queen. If the new method works out any one will be able to change his stock to the kind desired without opening a hive.

As this is an intense age, an age of specialists, there has recently developed a tendency to specialize on bee-keeping, in queen rearing and in the production of honey. While it is being carried along with some other business as a side line, affording a means of pleasure or diversity, it has been proven that it can be made a profitable business. Several unsuccessful winterings and the spread of foul brood diseases have eliminated quite a number of beekeepers and has left the field more to the specialist, who is wide-awake, a student and who reads the bee-papers.

The most important feature of the year and that of most importance to Pennsylvania bee-men is the work of inspection of foul brood diseases. In 1911 a law was passed by the Legislature, but it failed to make any appropriation to carry it into effect. A number of willing men volunteered as inspectors and gave much of their time and means to combat the disease. The last session of the Legislature made a small appropriation. Two men were appointed and qualified as State Inspectors. The money not being available until late in the season, cold weather prevented much work being done this year. In all about 250 apiaries were visited by the Inspectors, mostly in the central and southeastern part of the State. The yards visited are scattered through 24 counties. With few exceptions no entire county was covered. The Inspectors worked where it was thought most necessary. The total number of colonies inspected was 6,797, and of these 774 were found to be diseased either with European or American foul brood; about three times as many cases of American as of European. The work of inspection is found to be a greater task than it was supposed to be; and the spread of the disease more alarming than it was at first feared. The work of the men is meeting with approval everywhere. In the majority of instances where colonies are infected with disease, their owners are entirely ignorant of it. On being shown the nature of the disease and how to cure it, they become at once interested and willing to fight it. The trials of inspectors perhaps are not to be counted. They meet with all classes and conditions of people in their work. The greatest hindrance, possibly, and also the greatest nuisance in bee-dom is the old kind of hive. It may be an old "bee gum" or box hive, a nail keg, a soap box or even an old log. It may be worse; an attempt at modern beekeeping, a home-made frame hive with frames out of all proportion to manner of comb building and combs running diagonally across the hive, all of which prevent any possibility of opening the hive without a cold chisel or crowbar.

The work of inspection will bring new life to agriculture. It will eliminate the old system of keeping bees whose success was marked only by the number of swarms. It will be the means of educating that class of persons who read no papers and who never come in touch with others that are alive and awake to the best. It will mean the use of better appliances and consequently the greater production of honey. There is a hopeful outlook for Pennsylvania bee-culture. The motto of one of our great beekeepers was "Keep more bees." The slogan of Pennsylvania bee-men should be "Keep bees better" and "Keep better bees" after which we may well adopt the motto of our lamented brother.

I might state here that we have an organization in Pennsylvania called The Pennsylvania State Beekeepers' Association, which I suppose consists of the most alive men in the State of Pennsylvania, in the line of beekeeping. There are a number of associations throughout the United States, nearly every State having its own association. Pennsylvania, in numbers, is second and is rapidly increasing. Our meeting will be held in this building on February 20th and 21st, and we invite the co-operation of this Board and of all bee-keepers and men in the State interested in bee-keeping and invite you to our convention.

The CHAIRMAN: The paper will be received and published. Next is an address on "Fish Culture as a Source of Profit to the Farmer," by Hon. N. R. Buller.

Mr. Buller then delivered the following address:

## FISH CULTURE AS A SOURCE OF PROFIT TO THE FARMER

By HON. N. R. BULLER, *Commissioner of Fisheries*

Mr. President and Members of the State Board of Agriculture: It was with the greatest of pleasure that I accepted the invitation to be present at this meeting and meet face to face the men who stand for development of the farming industries of this Commonwealth, and whose highest aim is to make two blades of grass grow where one grew before. Born on a farm and growing up on the same until the time I went to work at the first State Fish Hatchery in Pennsylvania, I feel that I have a right to be counted as a farmer, for experience has shown me that the raising of fish by the farmer is as much a part of his work in providing food for the world, as any other so-called agricultural work. There are very few people, unless they have made a study of the subject, who appreciate what can be raised from an acre of water in the way of food with much less labor and trouble than any other livestock is raised upon the farm. I have, therefore, taken as my theme today the capabilities of an acre of water.

### WHAT AN ACRE OF WATER WILL DO

The possibilities of small areas of water for creating a food supply are little appreciated by the average farmer. There are few farms in the Commonwealth which have not a waste spot on them that, with little expense, could be converted into a pond which would serve as a breeding place for enough fish to furnish the family with a very considerable food supply and have some to sell. Of, several farmers might join together and build a larger pond which would serve to furnish them all with fish. The only requisite would be a supply of water sufficiently strong to prevent the pond from stagnating, and this supply need not necessarily be very large. When the pond is established it could be stocked with fish, preferably bluegills and catfish, both fish of the greatest fecundity and fine table fish. The bluegill has a gameness that makes his taking sport, even

for the most expert angler. With these fish should be placed in the pond a number of minnows and then the question of food supply for the fish is settled. Here, then, is a waste spot turned into a productive one and the feeding of the product requires no further outlay than the original investment.

The question of food supply is one that is attracting more attention than any other, and experts and theorists are devoting columns of language to explain how the problem can be solved so that food will be cheaper to the man of small means. It is an aid to this solution that the Department of Fisheries of Pennsylvania calls the attention of the farmers to the possibilities of the fish pond. Very few persons realize how much can be done with an acre of water in the way of producing fish, but the reason for this is that they do not know the productiveness of the two fish mentioned—bluegills and catfish. The small or no cost for their maintenance and how taking a supply of fish for a meal may be reduced to a sport seductive to the small boy of the family who hates to chop wood and really a delight to the mother and daughters of the household. The pond need not be much deeper than to hold sufficient water that will not freeze to the bottom in winter time, but of course, a depth of from five to eight feet would be an advantage. There is nothing adds more to the charm of a landscape than a glimpse of water, and the fish pond may thus become an attractive spot to the farm as well as a utilitarian measure.

When Bayard Taylor erected his home at Cedarcroft, near Kennett Square, Chester county, his artistic soul missed the absence of water; that section of the country being rather high and dry and devoid of considerable water courses. At some distance from the house, the poet dug a small pond which fed from a spring and then cut a vista through the woods which gave the sitter on the porch of the house a glimpse of the water, and it was wonderful what a touch of beauty that waterscape gave. It is not often in this work-a-day world that the beautiful and the utilitarian are united, but here the farmers have a chance to unite them.

The pond should be planted with an aquatic plant that will make it a thing of beauty and at the same time furnish food for the finny dwellers in the water, because it is the aquatic life that grows upon plants that furnish the nourishment for the small fish, and experience has shown that the number of fish that will thrive in a body of water is exactly proportionate to the amount of food that is there for the support of the little ones. Around the pond should be planted shrubbery which will also add to the food producing species for the fish, because insects will harbor on the bushes and their larvae and even eggs and themselves drop into the water. The excavation of a pond need not be an expensive thing and once constructed, the cost of maintenance is really nothing, while, as remarked above, the food supply will take care of itself. The best fish for such ponds are the bluegill and the catfish. The best variety of catfish is the common bullhead indigenous to the waters of Pennsylvania. It grows in length a foot to 18 inches, and weighs from one to two pounds, though sometimes running up to five and six pounds. "The horn pout or common bullhead," says Thoreau, the naturalist, "are dull and blundering fellows, fond of the mud and

growing best in weeding ponds and rivers without current. They stay near the bottom moving slowly about with their barrels widely spread watching for anything edible. They will take any kind of bait, from an angle worm to a piece of tomato can, without hesitation or coquetry, and they seldom fail to swallow the hook. They are very tenacious of life, opening and shutting their mouths for half an hour after their heads have been taken off. They spawn in the spring and the old fishes lead the young in great schools near the shore, caring for them as a hen cares for her chickens, a blood thirsty and bullying set of rangers, with ever a lance at rest, and ready to do battle with their nearest neighbor."

As an edible fish, the catfish takes front rank in the minds of many people. A number of years ago there was a famous resort near Philadelphia, on the Wissahickon, where a visitor was escorted by the native that he might enjoy the pleasures of catfish and waffles whose praises were sung as being rivals to the ambrosia and nectar of gods on Olympus. One of the most enthusiastic trout fisherman in Pennsylvania once remarked: "Did you ever eat a catfish from a trout stream? I have, and I want to say that when I catch a catfish when fishing for trout, that fish goes into the creel to be kept for my personal breakfast. There is simply no fish his equal." There are few people who do not know the edible qualities of the catfish, but their tastes have been somewhat spoiled from the fact that so many catfish on the market come from undesirable waters, and are, therefore, not the best specimens on which to gauge a taste. The catfish from the ponds of the farmer would be a fair rival to the famed fish on the Wissahickon or the catfish from the trout stream.

In addition to furnishing food and sport, the fish pond would give the children of the farmer an opportunity to study fish lore, and given an opportunity, there is no doubt the children would take it, as the study is a fascinating one. The catfish herds its young in a round ball and moves them much as the herders in the West move the herds of cattle by the process of rounding them up. The bluegill is thus described by Jordan and Evermann in *American Food and Game Fisher*:

"The bluegill is perhaps the best known and certainly the most important of all our true sunfishes. It is found throughout the Great Lakes and in the Mississippi Valley, from western New York and Pennsylvania to Iowa and Missouri, and from Minnesota to Florida and the Rio Grande. It is one of our most valuable and widely distributed species, and is found in all lakes, ponds and quiet streams throughout its range. Though found in quiet streams, it is above all the sunfish of the lakes, and whether large or small is decidedly more abundant in the smaller ones. The bluegill is the largest of the sunfish. It reaches a length of 12 to 14 inches and a weight of nearly a pound, with a maximum weight of about a pound and a half. As a food fish, the bluegill is of much importance, and of all the species, it is one most often sent to market where it always brings a good price. As a pan fish, it is excelled among fresh water fishes only by the yellow perch. Its flesh is firm and flaky and possesses a delicious flavor, and among all the sunfishes,

it holds the highest rank as a game fish. It can be taken at any time in the year, even through the ice in winter. It bites well during the Spring and early Summer, while very early in July until September, it is particularly voracious and fine catches can be made. It will take any sort of bait and it can be taken with any sort of tackle. Angle worms are probably the best bait, either in still fishing or trolling, but grasshoppers are also excellent, while grubs, small minnows, small pieces of fish or mussel are good, and they can be taken on the artificial fly or small trolling spoon. The bluegills usually keep in more or less definite schools and the patient angler can usually land them all. They do not seize the hook with a rush as does the rock bass, but quietly sink it in and the fight does not begin until the fish finds that it is hooked, but from then on the fight is of the most vigorous kind and is kept up to the end with a persistence and viciousness that makes the bluegill 'the gaintest of all fishes for its size.'"

While, as said above, the fish pond can be made a source of profit and pleasure at no expense, or very little for maintenance, yet growing the fish is like growing everything else on the farm, there must be constant vigilance. Weeds grow in the corn field with a luxuriance almost equal to that of the fable, "Jack's Bean Stalk," and they must be cultivated out or there will be no corn. The potato bug will quickly destroy a patch of potatoes, if they are not taken in time, and yet every one knows that the potato bug is not an unmixed evil, for prior to his arrival, potatoes were planted and left to take care of themselves, the result being that the crop was from 25 to 50 bushels an acre. When the potato bug made its appearance he forced the farmer to take better care of his potatoes and the result has been that where 50 bushels were fathered before, from 100 to 400 bushels an acre are gathered now. Fruit trees must be sprayed to prevent their destruction by scale and other insect enemies, while even the housewife finds her little astors cut off by a bug as they appear above the ground, and worms and other insects render her rose bushes unsightly instead of pyramids of bloom, unless she exercises the utmost vigilance. Water snakes will appear in a pound with an appetite that is startling. Algae will grow in the water and must occasionally be removed when it grows too thick. Kingfishers will appear to collect from everywhere, each armed with an appetite for fish, but two or three poles set around the pond on the top of which are placed traps will reduce the number of kingfishers to the minimum, and the minimum can be still further reduced by the careful use of a shotgun, and the shotgun for the kingfishers will train the boy up to be the handler of a weapon, a desirable thing, where the army is composed, in case of war, almost entirely of volunteers who will be practically valueless unless they can shoot.

Herons will also be attracted to the ponds and they have a voracity which is appalling. The blue heron, after gorging himself, will take an additional number of fish and place them in rows on the bank covering them with some material. These fish disappear in time, but whether taken by the heron or something else, there is not sufficient testimony to tell. The herons are mostly night birds, and therefore not so easily seen as the kingfishers. Muskrats will come and dig holes in the bank, which, if not watched, will result in

a crevasse which will allow the water to run unexpectedly away and leave the pond a dry waste with the fish dead upon the bottom. A steel trap or two will place the muskrats in the situation of a good muskrat, in, that his flesh is edible and his pelt is worth now from 75 cents to a dollar each. There is a prejudice against eating muskrats, which is due largely to its name, the muskrats being really beavers and beaver's flesh is considered a delicacy. The muskrat is sold in the restaurants at Baltimore and is rated a dainty as the muskrat feeds exclusively on vegetables and carefully washes his food before he eats it. While as an enemy he is a source of trouble, he can be converted into a pleasant edible and his hide into a merchantable article.

It might be said here that if some tadpoles were introduced into the pond the result would be frogs, and the fish diet may be supplemented occasionally with that of frogs, though the frogs will not thrive in very large numbers in so small a pond. Certainly it is a very tempting picture to a man who appreciates good living and enjoys fun in getting it rather than hard work. Here is a fish that is described as next to the daintiest of fresh water fishes as food, and the gamiest of all fishes of its size. How much more delightful on a hot day would it be to go down to the fish pond and inveigle out a mess of bluegills for supper than to chase around in the hot sun a light footed rooster which objected to having his head cut off.

The Department of Fisheries has grown up from small beginnings, when it was first found that artificial propagation was the way to keep up the supply of fish. The waste ordinarily from propagation naturally is very large on account of the numerous enemies that have to be considered, but many of these enemies are eliminated in the pond so that the natural processes ought to keep the ponds stocked. This can be supplemented, annually, by new blood obtained through the Department of Fisheries.

While probably the most talked of work of the Department of Fisheries is the propagation of the game fishes, such as trout and bass, this is really but a small end of its work. Food fish are the most valuable kind, being propagated for Lake Erie by the hundred million annually, and the Department today is striving in every way to stock the streams with the food fishes indigenous to them, and is now striving to induce every farmer in the Commonwealth to add to his resources by building a fish pond and stocking it with the fish described in this paper. The Department stands ready to render every assistance to the pond builder in the way of advice and the procuring of stock fish, and the Department is satisfied that if one man in a neighborhood will take the matter up practically, that it will not be long until he will convince all his neighbors that a fish pond is not only a proper adjunct to the farm in the way of furnishing a food supply, but a source of continual amusement to the whole family, especially the women and children, in the way of alluring sport and an additional beautifier to the already wonderful landscape of Pennsylvania.

Some twenty or more years ago the United States Government authorities introduced into the United States the German carp, it being induced to do so by the fact of its enormous prolificness, and the fact that it is the main source of food supply in parts of Europe.

They did not reckon with the fact that the carp is an inferior fish to many species of the American funny tribe and that it introduced a fish to upset the balance which nature established. Fish are mostly cannibals and one species preys upon another, but under the laws of nature they balance and an equilibrium has been maintained. The carp brought in a vegetable feeder that preys upon the roots of plants and destroys therefore the vegetation which furnishes the breeding places for much of the food of the other species of fish, and at the same time is a spawn eater. Its introduction is a mistake, but it is here to stay. Captivated by the stories of its fecundity and the probable wealth to be acquired in growing them, numbers of fish pond were started and stocked with carp. The experiment proved a failure because in small ponds and warm water the carp proved a fish that few people wanted, its flesh being coarse and to a certain extent tasteless. Thus the carp raising proved a financial failure and there are few, if any, carp ponds now left in the State. The carp escaped to the rivers and lakes and have increased enormously, but in purer and colder water the flesh is better than that of the fish grown in the smaller ponds.

In the case of the American fish spoken of above, their flesh is not affected in the way that the carp was, and therefore the grower of them is always sure of dainty meal.

It is difficult to make an estimate as to the cost of a pond, but in most farms there is a low-lying spot with a tendency to swamp other land, which, if an embankment could be raised, would make the necessary pool. Both the bluegills and the catfish are warm water fishes and will thrive, no matter how warm the water gets in the summer time, and will even stand a certain amount of stagnation. They are thus eminently fitted to meet the requirements and really will thrive in the same water that the carp would, while at the same time they do not lose their flavor for the table. No boy needs to be told how to catch a catfish, and after one cast of the line any girl is a devoted angler for sunfish, and the command of the children to go and catch a mess of fish will be greeted with smiles, where sour looks would be returned on an order to do some other kind of farm work.

Fish diet is commended as one of the best, and many dietarians point to the hardy dwellers along the seashore as examples of a race that grow up on a fish diet.

When the Department has completed all its plants for perfecting its hatcheries, the limits of its capacity to furnish fish for restocking the waters of Pennsylvania will only be limited by the demand, and if all the waste spots on the various farms should be turned into fish ponds, there is no question that the problem of a cheap food supply will be very near to a solution. A pond of the size of an acre ought with attention produce from 5,000 to 6,000 pounds of fish a year, and this with no expenditure for food. If, however, artificial food should be used, of course, more fish can be taken out of the pond. Five thousand pounds of fish at ten cents a pound is \$500.00, and there are not many acres in Pennsylvania which are returning that revenue to the farmer. Like every other procedure, it is under the primeval curse, and the man who has a fish pond must give it at least some time and attention. Muskrats come and

attack the banks of the ponds and possibly allow all the water to run away at an unexpected time, meaning the loss of all or many of the fish. Cray fish will also attack the banks and do much damage, but all these drawbacks are small compared to the yield that the farmer will get. The best way to stock a pond is to procure about 200 adult fish and then the fish will proceed to increase and multiply in marvelous jumps, until the farmer is sure of his thousands of pounds of fish, which not only means a very desirable revenue, but at the same time the taking of fish affords sport, and the farmer's family has a pleasant change of diet in the fish. As remarked above, the farmer's children are apt to slide away from hard work, if it is possible, but it is doubtful whether there is a boy or girl who having once tasted the pleasures of fishing, would not want to spend as much time fishing as possibly could be allowed them.

The Department of Fisheries, as remarked above, stands ready to co-operate with the farmers in stocking the ponds, and will be glad at any time to furnish all the information it has upon the proper way to construct a pond. It will be seen that the business requires very little outlay of money and when it is in running order the yield of fish will be a surprise.

MR. STOUT: May I ask a question of the speaker?

MR. BULLER: Yes, sir.

MR. STOUT: I have a pond that covers probably an acre and a half, and occasionally, I have occasion to draw the water. A few years ago I had occasion to draw the water and was threatened with prosecution if I didn't catch the fish with a hook and line. So it is a question in my mind whether we have a right to our individual rights on private property, under those circumstances. If I should draw off that water and should catch those fish with my hand or with any other means than a hook and line, and sold some of them, wouldn't I be liable to prosecution under the law?

MR. BULLER: Under certain conditions you would; but the Department of Fisheries, as I stated, is anxious to assist the farmer and under certain circumstances we would issue a permit.

MR. STOUT: Well, if I want to get a permit, do I have to come to Harrisburg?

MR. BULLER: No, you can get it by writing. The object of a permit is to protect the fish that are not in private water. If the law was made so that everybody could fish in any manner they saw fit, it would be only a short time before there would be no fish left in the streams of the State at all, and for that reason the laws are made, but the law does not interfere with the man who makes a business of breeding fish in private ponds outside of a stream.

MR. STOUT: Must he get a permit?

MR. BULLER: Yes, sir.

THE CHAIRMAN: We have a little time before adjourning, yet this is the last paper on the program. Is there any other discussion of any of the papers read this forenoon or any time?

DR. CONARD: I would like to ask at what age those catfish became large enough to use?

MR. BULLER: About three years.

MR. STOUT: I would like to ask Mr. Schultz why is it that the fertilizer bags have on, for instance, potash K<sub>2</sub>O, actual potash K<sub>2</sub>O, and then below they have on "equal to sulphate of potash," and to explain some of those useless phrases on those sacks. He is familiar with this business, and I would like to have it explained.

MR. SCHULTZ: In answer to the brother's question, the manufacturer is sometimes compelled to do things the same way as the other manufacturer does, if he don't, he will get into trouble. The question that the brother asked, I guess he can't find that on the Reading Bone Fertilizer bags and thinks he must ask somebody else to have that question answered, but there is another question in my mind while I am called upon, I think I must say a little on that subject. I was asked the other day why we put on the fertilizer bags a statement giving the phosphoric acid and right below that we said, "so much bone, phosphate of lime," and in answer to that question I want to say this, that a number of years ago, I came to a good farmer who was a fertilizer agent for another company; I wanted him to sell my goods, but the other man had printed on the bags "bone phosphate of lime," besides the phosphoric acid, which the company that I represent did not do at that time, and I told him that if he would take the phosphoric acid away, he wouldn't have the bone phosphate of lime left, or even if he'd take the bone phosphate away, the phosphoric acid would not be there, that it was one and the same thing in different terms. He always came back to me after I was done, and I thought I had him convinced that I was right. He said "Yes, but I still believe that if you had the bone phosphate in the bag, you would have it on the bag, too." The consequence was that I could not get his order and, therefore, I think that answers the brother's question here; if the fertilizer manufacturers, as a whole, observe certain conditions and have certain methods of printing the analysis on the bag, the man that does not do that, who drops one or the other form, why, the farmer is not posted well enough along those lines and if he does not find a great big string of analysis on that bag, he thinks the goods of that man are deficient, there's no question about that; the trouble is not with the manufacturer but the trouble is with the consumer. If you want to help the farmer, you must educate him. Even if that is printed on the bag, it is not a detriment to the farmer, but the farmer ought to know those things.

Then another question comes up; they say "You have no business to print those two columns on the fertilizer bag." The same question comes right in there; the majority of manufacturers are doing it; say, for instance, ammonia 2 to 3 and so on, and phosphoric acid the same way, and the man that don't print it, cannot find a market in a great many cases, simply because the farmer is not properly educated; the farmer don't know that it is only the firm column that is guaranteed and not the second.

MR. J. ALDUS HERR: In our county of Lancaster, we are growers of tobacco and have some difficulty, as it is well known that in effecting a good burn of tobacco, you should not use muriate of potash; sulphate of potash should be used to secure a better burn. Now, in all the analyses or nearly all of them, we find a certain percentage of muriate of potash equal to sulphate of potash, but that does not assure the purchaser that he is getting sulphate of potash and the packers of tobacco who buy our gods are forever casting it up to us that we are using muriate of potash. What assurance have I, when purchasing a good brand of fertilizer for tobacco, that I am getting sulphate of potash—what I pay for?

MR. SCHULTZ: The brother just admitted that it was not promised by the manufacturer that he was getting sulphate; he cannot blame the manufacturer. If he goes to that manufacturer and demands sulphate, he will certainly get it; if he does not, he ought to know the reason why. The trouble is not with the manufacturer, but the farmer don't want to pay the price of the sulphate; there is where the trouble is.

MR. J. ALDUS HERR: I beg your pardon, we will pay the price if we get what we are paying for; we don't get what we are paying for, that's the trouble.

MR. SCHULTZ: Do you mean to say that you bought fertilizer where sulphate was promised and yet didn't get it?

MR. J. ALDUS HERR: I do, yes. We have more than one instance of that kind, where it was promised by the agent; it didn't say sulphate of potash on the bag, but it says "equal to sulphate of potash"; and the agent would have you understand it is the same thing, when it is not. The one will not make a good burning tobacco and the other will. How are we assured that we will get it?

MR. SCHULTZ: Well, the manufacturer that promised that and didn't carry it out, I don't think I would patronize him any more, that's all.

SECRETARY CRITCHFIELD: My thought always has been that the statement "equal to sulphate of potash" means that the source of potash in that fertilizer was the sulphate, and where the statement is made "equal to muriate of potash," the indication was that the source of potash was the muriate.

A Member: Mr. Secretary, I am sorry to take issue with as big a man as you, but you are wrong; it means that it is equivalent to that certain amount in sulphate of potash.

SECRETARY CRITCHFIELD: Well, very much of the information I have gotten in my past life has come from my acknowledging that I didn't know; I am very glad to know this. It has always been my impression that where it said "potash K<sub>2</sub>O equal to so much sulphate of potash," that the source of that was the sulphate; am I wrong about that?

MR. SCHULTZ: I would not say when it said "equal to sulphate," that the potash came from sulphate, but that it came from something just as valuable as so much sulphate.

PROF. SURFACE: I think the idea is that it contains the same amount of potash as that much sulphate would contain.

MR. SCHULTZ: Yes, yes.

PROF. SURFACE: But that does not indicate necessarily that the origin of that potash is the sulphate.

MR. JOEL A. HERR: I want to ask a question; I have sampled a good deal of fertilizer and know what is branded on the sacks; is it not a fact that, of later years, some of our leading fertilizer manufacturers don't put that on the sack at all, they simply say—give the minimum figures, don't put the two columns on the sack, but simply the one column, the minimum analysis of the brand used? And I think Baugh is one of them. If one man can do it, why can't the rest? It is evidently designed to deceive the farmer, that is the purpose of it, and there is no reason why it should be done. It need not deceive the intelligent farmer, but it is intended to play on the ignorant. Many a time I am asked what all that stuff on the sack is for and I don't want to discriminate against anybody's goods, but when a man asks me a plain question what that means, I am going to tell them if I know and put them right, and I will do it in very few figures. If one firm, Baugh, for instance, and there are some more that do that very thing, puts down the minimum analysis on the sack, I think the law ought to compel all of them to do it.

MR. J. ALDUS HERR: The muriate of potash contains muriate of chlorine, and chlorine is detrimental to the good burning of tobacco.

MR. BRONG: The reason I was not in this morning in time, Mr. Chairman, was that I was writing an article on the subject under discussion, and it will not take me more than five minutes to deliver it, while I am on the floor. The report of the Committee on Fertilizer read yesterday is an interesting one. I could not feel that I was doing my duty, either to this Board or the farmers of the State, if I did not add a few remarks on this subject. The report recommends the use of the highest priced fertilizers. The recommendation, when made to a specialist or to the more intelligent class of farmers, is a safe one, but where used logically to sell low grade mixtures or chemicals or high class chemical mixtures, it becomes the rock on which many a farmer's hope springs its leak. Phosphoric acid, the one element of plant food admitted by scientists, fertilizer manufacturers and farmers alike to be the most universal crop lifter, can generally be purchased most cheaply in the form of acid phosphate. Fourteen per cent. acid phosphate costs us \$11.20 per ton, not reckoning a cash discount. Basic slag, which in our soil we consider even a better source of phosphoric acid, we purchase at the same price per plant food unit. The fertilizer manufacturer will take the ton of acid phosphate and divide it by two; that is, he will take out one-half of the phosphoric acid, he will then add to take the place of what he has taken out, one-half perhaps of one per cent. of ammonia or two per cent. of potash, and asks me \$16.80 for the product. In other words, for a fertilizer containing nine and one-half units of plant food, the manufacturer asks \$5.60 more

than for the standard chemical on which it is based, and containing fourteen plant food units.

From this one little illustration it is very plain that the advise to buy higher priced fertilizers may be very misleading. So much for that. This report, my friends, contains another recommendation to which I would direct your attention for a moment, namely, the appointment of a fertilizer plant inspector by the State, the idea being conveyed, we take it, that if a State Inspector under the auspices of the Secretary of Agriculture, perhaps, would visit the fertilizer plants of the State and report on the kinds of materials found in and around such plants, it would tend to insure the use of high grade materials in the make-up of fertilizers.

The report has interesting statistical figures and the Chairman probably could extend those figures to show how much of the fertilizer purchased and used in the State is made within the Commonwealth and what per cent is manufactured outside. At a rough guess I should estimate that at least seventy-five per cent. of all the fertilizer and fertilizer materials sold and consumed in the Commonwealth, are manufactured outside the State. This means this Inspector would employ to inspect a fertilizer plant located at Baltimore, for instance, that did not wish to be inspected, your committee would have the legislative committee or the Legislature devise—not by any means an easy job.

Again, fertilizer manufacturers are, with a few minor exceptions, corporations and corporations have no conscience which would compel them to have all the materials, formulas, secrets, etc., of their business lying around for even a State Inspector to inspect; that, in the make-up of certain formulas of complete fertilizers there may be a large difference in the crop producing value, we are fully convinced; that the manufacturer who uses the high grade material should have proper credit for it, no man will gainsay; that the farmer who buys and pays for an article is fully entitled to know what that article contains is today admitted in practically all commercial transactions except in the matter of fertilizer.

After a discussion of a similar report, this body, two years ago, passed a resolution favoring the recommendation to the Legislative Committee of a law requiring all fertilizer manufacturers offering and selling fertilizers in the State to have printed on the bag or container the amount and source of each of the three plant elements, nitrogen, phosphoric acid and potash, generally contained therein. This will protect the farmer, encourage the manufacturer who uses good materials and wrong no man. Mr. Chairman, I offer the following resolution:

**"RESOLVED:** That the Legislative Committee of the State Board of Agriculture frame or have framed an Act which shall require all fertilizer manufacturers or concerns selling fertilizers or offering same for sale in this State, shall be required to stamp on the bag or container of such fertilizers, in addition to the present requirements, the source or sources of either the nitrogen, the phosphoric acid, the potash, or any two or all three of these elements, as the case may be. The

Act should provide for the chemical analysis of samples and provide that brands found not conforming to the printed statements on the bag or container should be refused license thereafter.

*"RESOLVED FURTHER:* That the Committee make a firm and consistent effort to secure the passage of such Act.

MR. SCHULTZ: May I say a word in answer to that report?

The CHAIRMAN: Certainly.

SECRETARY CRITCHFIELD: Before the gentleman from Montgomery says his word, perhaps you had better dispose of that resolution. We have a Standing Committee on Resolutions and I think it would be well to refer that resolution to that committee; the Chairman can do that.

The CHAIRMAN: The resolution will be referred to the Resolutions Committee.

SECRETARY CRITCHFIELD: That Committee is not yet appointed but will be very soon.

MR. SCHULTZ: If I am not mistaken, we have a law on our statute books whereby the manufacturer is supposed to be compelled to print it on the bags, if he derives his ammonia from leather scraps. Leather scrap is the great sinner of this State, I can tell you that. On that product the farmers of Pennsylvania are throwing more money away than on any other particular thing, and that is the reason I rose, because I know what I am talking about. We have that law. We know that thousands of tons—it can be proved that thousands of tons of leather scraps are sold to the farmers of the State of Pennsylvania and manufactured in the State. We also know that nobody prints it on the bag. Why not? In the first place, if he did, he couldn't find a market for the—I almost said a strong word for it—he couldn't find a market.

Why don't the State compel him to state it on the bag? I think we had the answer two years ago from Dr. Frear. Is he in the audience? I wish he was here. Two years ago, after I made that report and presented that resolution to this body about having an Inspector appointed, he said it was a fact that it was almost impossible for the chemists to tell where the ammonia came from in the complete fertilizer and if it came from leather scrap it was practically useless as a crop producer. I had that same resolution brought before the Grange Convention at Reading, recommending a fertilizer Inspector to see the material before it goes in the goods. Those things are manufactured by a manufacturer that makes ten, fifteen or twenty thousand tons in a year. He cannot hide those things, you need not be afraid that you cannot find out what he is doing. A man would not have to be constantly at his factory; he does things in big quantities. I know a plant today that has a thousand tons of that leather scrap that is going to be sold to you farmers and you will pay for it the same price that you would if that ammonia came from animal tankage, blood or bone, and those things are not

right; it is not justice to the manufacturer who is honest or to the farmer.

In what I recommended about low grade goods in my report, I was honest and can stand back of it. The man who wants to buy phosphoric acid and that only, wants to buy high grade phosphoric acid. If he wants phosphoric acid and potash, he should not buy a fertilizer containing only six and three; he should buy a fertilizer that contains all the plant food the manufacturer can get into that one bag, and save your freight, save the filler, but buy high grade goods, whether the raw material or the ready mixed fertilizer.

A Member: What is the highest grade of acid phosphate you can make?

MR. SCHULTZ: We get some material that runs 78 per cent. of bone phosphate; we can make 18 per cent., but I would not recommend the farmer to buy it, because if you send that out at 18 per cent. it is a question whether it is in good chemical condition, but we can send it out at 16 and sell a great deal at 14 and we sell the bulk at 12, but that is wrong; I am not talking now from a manufacturer's standpoint, but I know some things that have been hammered into me by hard experience.

A Member: How is ten and ten?

MR. SCHULTZ: That is a good fertilizer; wherever we sell a man 10-10, he comes back for more.

MR. STOUT: In collecting samples, I discovered one brand that was termed un-ammoniated phosphate, phosphate of lime. Can you explain the meaning of that? Those long words, I don't understand.

MR. SCHULTZ: I am not a chemist, I am a farmer the same as you are, but I know some things about fertilizers. I know what is practiced on the farm.

MR. STOUT: I understand that that means un-ammoniated;—not ammoniated, it would simply be South Carolina rock dissolved.

MR. SCHULTZ: That is what it is no doubt. The resolution I had, before it came out on the floor, there was enough influence back of that curtain that they tore it all to pieces and it came out meaning this, that the manufacturer would be compelled to print it on the bags if he derived his ammonia from leather scrap, but you cannot enforce that; the only way is to have the Inspector; make farming more successful, protect the farmer from throwing his money away; that will reduce the high cost of living too.

SECRETARY CRITCHFIELD: I want to say that the Department has been very careful in having those examinations made for the things that are forbidden to be sold without its being stated on the sacks. Wherever the information has come to the Department that things that are forbidden have been found and yet not named on the sacks, prosecutions have followed.

There's just one word more—this discussion is very interesting, I shall be sorry to stop it; but I want to say to the Board that, judg-

ing from the interest that was manifested in the discussion on roads yesterday, I thought it would be a good thing to spend five or possibly ten minutes in having some pictures thrown on the canvass showing what has been done by the use of the King Drag method in one of the counties nearby. I have arranged with Dr. McCaskey, a Supervisor down in Lancaster county, of whom I have often heard and of whose good work I have heard very favorable reports, to come here and throw his pictures on the screen, if it is the desire of the Board. Shall we have them or not?

(Several members responded in the affirmative).

**MR. SCHULTZ:** I must have one word more. I wouldn't want to accuse the Department of not doing what they can to protect the farmer, but they don't have the proper laws.

**SECRETARY CRITCHFIELD:** It wasn't necessary; I am not afraid of being accused. Now I have the pleasure of introducing Dr. McCaskey of Lancaster county, who will explain the pictures that are thrown upon the canvass.

#### ROADS AND THE ROAD DRAG.

**DR. McCASKEY:** Mr. Chairman and Gentlemen: Last night in the paper we noticed down our way that the Governor had made a speech before this body and was open to suggestions relative to anything that could be done to improve the road conditions. In this morning's paper we noticed the same thought very much amplified and I jumped on the train and came up here with this suggestion to you gentlemen, and if you think it is worthy, I certainly believe it would be a very good opportunity for you to submit it to the Governor and to the Highway Department as a good practical remedy for helping to improve our local road conditions.

The whole purpose of road improvement is not going to be solved on a money basis; you can spend money from now till doomsday and won't get the roads, and you are not going to get the road condition entirely improved by legislation, because the great difficulty is that you have got to deal with Supervisors, you have got to deal with local officials who travel roads just like those you are looking at now. Now these roads—these pictures were taken some years ago right down in my county where I live and where I travel every day, and absolutely without avail were all my appeals to the local officials to fix things. They didn't know how.

Now, we have had some of the best brains and engineering skill that we possess. We have got Commissioner Bigelow, there's some of our good old Lancaster countians that know what they want but don't know how to get it. We've got Commissioner Bigelow and Engineer Foster and some more, some of the best engineering brains of the State, but the State Highway Department is not acquainted with what the farmer wants. There is where this whole proposition hangs, and I understand that the Governor said yesterday that he was open for suggestions as to how to raise money. Here's Mr. Herr from Lancaster county, and some other people, but you are not going to get roads by money alone, I want to emphasize that, and the only

way you are going to get this thing going promptly is to avail yourselves and suggest and urge and keep on urging—bring it to the attention of the present Highway Department and the Governor as well to utilize the present township road law that we have.

That road law has been knocked and torn in pieces and hammered up and down and thumped as being a steal. It is not a steal, it is a good road law and I would just like to state here that the Highway Department didn't have anything to do with the formation of that road law, outside of occasionally being consulted relative to one or two of its minor measures.

A Member: Which one of the road laws do you mean?

DR. McCASKEY: The Township Road Law. The one passed at the last Assembly. In that road law, if you will read it closely, you will find in Section 2 or 3, that there's a paragraph, No. 7, that that paragraph authorizes the Deputy Highway Commissioner, who is Mr. Hunter, in the present instance, to call anywhere he wishes in the State of Pennsylvania, either a State Good Road Convention or a County Good Roads Convention or a Township Good Roads Convention. It seems to me that if that provision were utilized we could get—take, for instance, a township road convention right in my own community and in Mr. Herr's community—that picture is taken right on the border line between Mr. Herr's and my own—we could get a little local road convention here, there and at other places where there's a focus of good roads interests, and get road material men to study the benefits of road dragging, how to stand on a drag. The average farmer, when he takes hold of a drag, stands there like a stick, he doesn't appreciate the need of throwing his weight right on the front slab to cut off a hillock and throwing it on the rear slab to fill a hole. The first time I drove a drag, I used to sit down on it and one day the hind slab struck me in the back of the knees and I got my wife to sit down on it. Mrs. McCaskey thought the Good Roads Suffrage proposition was just as applicable as the political.

The thing I want to urge is that we do not have to pass a lot of new laws and do not have to raise a lot of money; we have got everything we need except good acquaintanceship. You will find, if you go through this State, among the farmers, that the average farmer is sore at the Highway Department; he is afraid. Why? He doesn't understand it and they don't understand him, and the quickest and most inexpensive way is to get this little simple provision worked through and have the Deputy Commissioner call these Good Roads meetings. If there isn't any official there that will take a job, the Township Supervisor Law authorizes the local County Superintendent of Highways to take a job. I thoroughly believe that all the thing needs is to have the Highway Department take hold of the proposition from the standpoint of the present laws and get out and get acquainted with the farmers, see what they want. That is the kind of roads we want the farmers to travel over.

When we have these good roads conventions here, there and the other place, so that the Highway Department officials and the farmers and all the good roads advocates who will be very much interested locally, will come and see just what you are looking at now

they will understand that the first proposition of a good road is to get it well drained. You can talk money as long as you please and talk good legislation as long as you please, but you have got to get a move back of things and if you don't hit occasionally, the good roads proposition will hang just as it has done for some years. I have been all over the highways of France and England and know all about the wonderful roads that they have there, and we want them and are going to get them. I have been right in this thing for six years and been studying it tooth and nail, travelling the roads; understanding the farmer's obstacles and the little difficulties we have to contend with, and this is my suggestion to our State Agricultural Board, to put this thing right in tangible form, in written form, before you adjourn and submit it to the Governor and to the Highway Department. There's no us trying to jump a hundred years. Now that is a type, a condition; all that road needed was a little sub-drainage. The Highway Department has a lot of concrete plans and specifications, but how many supervisors out of our 1,600 in Pennsylvania understand how to interpret a blue print? I have been up against this proposition and know something about it.

A Member: What make of machine is that?

DR. McCASKEY: A Buick. All that road needed was an underground drainage pipe. We put it in and it did fine. After we got the proposition to that point, we put in concrete abutments under either end of the pipe and the road is as dry as can be. I walked over it three days ago and the mud is only half an inch thick when it rains. There is another easily solved roadway problem provided you put in tiled drainage. All that road needs is some tiled drainage put in under that ditch. There is the same, identical road after seven hours dragging by the patrol system. That's all right down in our country; the farmers understand what it means and everything needed is a little bit of boost from Harrisburg and some of that. Until we get that, the road proposition is going to hang.

That illustrates a picture of a roadway when you don't want to get on it with a road drag; that mud gets worked up into sticky glue and you can't do a thing with it, you can hardly get it off the drag, and you kill yourself and kill the horses. There is a typical specimen; all that road needs is a drag and a little drainage, and if our Highway Department would avail themselves of the present law and bring a convention right down on that road, even if there were only five farmers there—and there will be a good many more—the automobile people and other elements of the community will be interested and it will do a lot of good missionary work. There's the same road after seventeen hours dragging. I happened to drag this road myself and know some of the difficulties, and when I tell you that contour today has been changed so that the road sheds water right along for the past five years and is presentable at all seasons of the year, you can get some idea what the simple patrol system does.

There is one phase of the local road question I would like to explain, and that is jealousy. Occasionally there are many contingencies in a community, there are jealousies arise and the road drag is so simple and so easily made that very often folks think there's

a "nigger in the woodpile" somewhere, they think it is too simple and wonder what is back of it. When I put the road drag on this work and finally fixed up this road, I created such hostility among some of our officials, that they went before our local court and obtained a temporary injunction restraining me from going ahead with the road drag. The road as you see it there is the way it was when I was prosecuted for fixing it. That shows you what sort of sentiment you have got to overcome sometimes. You see that rut there—that is two feet deep. Now the road drag will fix all that up and fix it up easily and quickly. It has been raining today a little bit; as soon as it would stop raining, the road would dry a little bit before it freezes. The road drag should be put right on there and fill those ruts in, and if the farmer is conscientious, he could drag the road four or five times and has got a good foundation, and every team that passes over will pack it harder.

I am not Supervisor any more, but I was for four years. We started this Road Patrol system working and at first, nothing having been done, it cost us more. I figured the thing out, kept every man's time and the days and hours he worked. It cost us \$30 a mile the first year. The second year it cost us \$12 a mile and the third year it cost us \$5 a mile. We've got some sections of our country roads that the farmers haven't been conscientious as to whether they are as good as the others or not, but where a farmer is conscientious, where he continues to work his road drag, the road is just like a county fair race track. That illustrates the picture of a Sproul road that has been cleaned up, with its side ditches. There is another. Notice how readily it could be fixed up if, just once a year, the road grader was sent along and those side ditches cleaned out and sod thrown towards the fence. That illustrates a well drained road. That is the kind we want and the kind we have in some sections. There is a typical illustration of a sleepy spot; that is the sort of thing every farmer in every township has, and I believe if the State Agricultural Board would just specify that road conventions be held in a practical way right out on the roadway and such spots as this be selected as a practical demonstration, it would do a lot of good. That illustrates a crow bar and shovel that are always necessary in travelling our country highways.

A young business man of Lancaster had this address the other night and I have tried to cut out most of the photographs that would be uninteresting to you gentlemen. There's a dog that knows almost as much about the country roads as some of us that have to travel them. There's the kind of county roads Mr. Bigelow and Mr. Foster want to give us, but we won't get them until we first get the confidence of the Department; so long as the farmer is afraid of the Highway Department, there will be trouble. There's the type of men we've got to get those roads through; what are you going to do with that man up in the middle? I have stood up three hours in the rain and argued with some of the people that didn't want to do ago; we procured an Amish man's services and gave him four miles of road to patrol and the farmers immediately said, "Sammy is working the township, he is making his living off the township?" You know how they throw it into people. But Sammy didn't bother but just kept busy.

The first year they found that this man's expenses were considerable, but the road was pretty well fixed up. The second year they found that the road was well drained and cost much less, and the third year, when he presented his figures to the taxpayers, everybody was quite satisfied; it showed it was the cheapest four miles of roadway in the township and the best, not even excepting macadam roads. There you have it, gentlemen, you can walk over that road or drive over it; it's a well crowned, well drained, open side ditched roadway that is respectable. It just goes to show what one Supervisor can do. If you drive through that road with a heavy load, you will not break your single tree or break your harness.

Another thought I wish to present is this: Why in the world should we teach our school children all about the great roads of the old Romans, etc., and not teach them any practical word on modern road conditions and needs? I would think if we could get a little local interest aroused in this proposition, if we could get some of our school teachers and Supervisors and directors to go out on some nearby community roadway and instruct the youngsters what it means to drain the road, show them the difference between surface drainage and underground drainage, they would become interested, youngsters now are not interested but they could be made interested. That illustrates what two hours' dragging did on the road we just looked at. That is just around the turn, about two miles away. There was, just before this road was dragged, there was a big farm wagon loaded with empty barrels struggling along through that seepy spot and the fellow got stuck. When this road was finally dragged he got his wagon out and his team started again, he went over this piece of road at a trot; it was the same, identical soil and everything. That is the kind of men we got to depend on if we are going to put this road patrol system into effect in a broad way, and, gentlemen, it can be done all over the State of Pennsylvania, just the same as it was done in my own local community. That is the type of road we all know; yet that road can be drained so that all the water will run off of it and stay off of it; and there is the type of man and there is the system that can be readily put into effect until we get the farmers' confidence and gentlemen when we get the farmers to trust us, we can have \$200,000,000 voted in bonds, but you won't get it until you do get the confidence and trust of the farmer, and if the Governor and Highway Department really want a better remedy for local road conditions at present, I would urge, Mr. Chairman, that the State Board of Agriculture utilize this suggestion. I thank you, gentlemen. This is quite a dignified body and it has been a pleasure for me to come here and address you.

**SECRETARY CRITCHFIELD:** The pleasure certainly has been ours, doctor, and we feel under obligations to you for your address.

(The Board then took recess until 1:30 P. M.)

Thursday, 1:30 P. M.

Vice President S. C. George in the Chair.

**THE CHAIRMAN:** First on the program this afternoon is the report of the Economic Geologist, Mr. Baird Halberstadt.

## REPORT OF ECONOMIC GEOLOGIST

The Coals of the Pocono (No. X) Formation in Pennsylvania.

By BAIRD HALBERSTADT, F. G. S., *Pottsville, Pa.*

Notwithstanding the oft repeated warnings of Government and other geologists, extending over a period of upwards of half a century, that the Pocono (No. X) formation of Pennsylvania contained no workable coal beds and that prospecting in these rocks for them would result disastrously, the past year has witnessed the sinking of thousands of dollars in vain searches and attempts to develop coal beds of commercial importance, at geological horizons where they do not exist. Within the past few years, between \$25,000 and \$50,000 have been spent, to my knowledge, in the prospecting, developing and the purchase of lands immediately underlaid by the Pocono Sandstone formation whose place is hundreds of feet, geologically, beneath the True Coal Measures. In every one of these cases, the results have been disastrous; the financial expectations of the promoters have not been realized and the only reward was dearly bought experience. In view of this and the probability of future attempts to find coal beds of economic value in these rocks, it has been thought well to make this the subject of the Economic Geologist's report for the year. It is hoped that the warnings, so oft repeated, will be at last heeded. Years ago, there might have been some excuse for such prospecting, but there is none to-day.

In the advanced state of knowledge at the present day, it is no longer doubted, that the arrangement of the rocks was made in a definite and orderly manner and that it is but a useless waste of time and money to search for certain minerals in certain formations. In Pennsylvania, conditions favorable to the growth, deposition and preservation of the vegetal debris from which the substance we call coal was formed, were not fully realized until the arrival of that period of geological time, known as the Pennsylvanian. Carbonaceous matter may be found in the rocks of all our formations, but at no time in the geological history of Pennsylvania, prior to the Pennsylvania period, was the vegetation seemingly of sufficient luxuriance to furnish the vast supply of debris required in the making of a commercial coal bed. If it were, then conditions were unfavorable for its deposition and preservation. A careful study of hundreds of surface exposures of the rocks of the Pocono series, together with a like study of the records of hundreds of gas and oil wells drilled through this formation fail to reveal the presence of a single coal bed of sufficient size and purity to warrant exploiting it. Unfortunately, in attempting to correlate the coals found and which were, for some time, mined at the Tipton Run mines in Blair county, a serious error was made in assigning these coal beds to the Pocono formation instead of to the Allegheny series of the True Coal Measures, where they rightfully belong. This fact has been conclusively proven, both in indisputable paleontologic and stratigraphic evidence. This was the single exception pointed out where the Pocono coal attained commercial importance in Pennsylvania, and has sometimes been used, unfortunately, to support the claim

that the Pocono coals in this State may, in some localities, be profitably mined.

As has already been pointed out, in every instance where the rocks of the Pocono formation have been examined, prospected and drilled through in Pennsylvania, the result has been the same so far as workable coal beds are concerned; namely: None have been found. Based upon evidence gathered from so many localities in so many counties of the State, it is believed that it is safe to say that, so far as our own State is concerned, all future attempts to mine these coals, will like those which have already been made, result disastrously.

That the subject may be more clearly understood, a table showing the relative position of this formation to others in the geological column and a brief description of the rock strata, comprising the Pocono series, will be given. Based upon lithologic and paleontologic evidence, the rocks forming the crust of the earth have been divided, sub-divided, and when warranted, these subdivisions have been still further divided, as will be observed in the following table:

#### LIST OF THE GEOLOGICAL FORMATIONS OF PENNSYLVANIA

| Period.                            | Epoch.  | Color and character of formation.   |
|------------------------------------|---|---|
| QUATERNARY, .....                  | Quaternary, .....                               | Glacial drift-peat and alluvium.  |
| TRIASSIC, .....                    | Triassic, .....                                 | Dark reddish-brown sandstone—upper beds, coarse conglomerate.   |
| PERMO (CARBONIFEROUS)              | Greene Co. Group, .....                         | Limestone, gray shales, sandstones and thin coal beds.  |
| PENNSYLVANIAN, .....               | Washington Co. Group, Monongahela River Series. | Sandstones, shales, limestones and coal beds—Pittsburgh bed at base.                                      |
|                                    | Conemaugh Series, .....                         | Red and green shales, sandstones, sporadic coal beds.   |
|                                    | Allegheny River Series, .....                   | Shales, sandstones, coal beds, limestones, iron ores.   |
|                                    | Pottsville series, .....                        | Conglomerates, sandstones, shales and coal beds.  |
| MISSISSIPPIAN (SUB-CARBONIFEROUS). | Mauch Chunk Red Shale, ..                       | Soft red shales, red sandstones.  |
|                                    | Pocono Gray Sandstone, .....                    | Sandstone, shales, slate, olive gray, conglomerate and thin coal seams (False Coal Measures.)             |
|                                    | Catskill Red Sandstone, .....                   | Red sandstones and red shales.  |
|                                    | Chemung, .....                                  | Sandstone—brownish-olive.   |
|                                    | Portage, .....                                  | Shales and flagstones.  |
|                                    | Genesee, .....                                  | Shales—black.   |
|                                    | Hamilton, .....                                 | Shales—bluish-gray, weathering to brownish.   |
| DEVONIAN, .....                    | Marcellus, .....                                | Shales—black, weathering to brown.  |
|                                    | Upper Helderberg, .....                         | Limestone, blue-sparry and chert nodules.   |
|                                    | Oriskany, .....                                 | Sandstone—yellowish white crumbles into pure sand.  |
|                                    | Lower Helderberg, .....                         | Limestone (clayey flaggy) varying shades of blue.   |
|                                    | Salina, Upper, Middle, Lower.                   | Red shale, limestones (salt group).   |
| UPPER SILURIAN, .....              | Niagara, .....                                  | Perhaps wanting in Pennsylvania.  |
|                                    | Clinton, .....                                  | Red slates, shales, sandstones, iron ore.   |
|                                    | Medina, .....                                   | Red and gray sandstones.  |
|                                    | Oneida, .....                                   | Greenish-gray sandstone (conglomerate beds.)  |
|                                    | Hudson River, .....                             | Dark blue (carbonaceous) shale and slate.   |
| LOWER SILURIAN, .....              | Utica, .....                                    | Dark (carbonaceous) slate.  |
|                                    | Trenton, .....                                  | Limestone, yellowish-gray.  |
|                                    | Calcareous, .....                               | Dark yellow-brown.  |
|                                    | Potsdam, .....                                  | Coarse, hard sandstone, friable sandstone—quartzite—fine white glass sand. Colors, brown gray and yellow. |
|                                    | Azoic.  |   |

The formations containing carbonaceous matter, beginning at the lowest, are:

- The Utica Slates.
- Hudson River Shales.
- The Marcellus Shales.
- The Genesee Shales.
- The Catskill Red Sandstone (occasional streaks.)
- Pocono Sandstone—False Coal Measures—(Coal Beds Unworkable.)
- Pottsville Series.
- Allegheny River Series.
- Conemaugh Series.
- Monongahela River Series.
- Washington County Group.
- Greene County Group.
- Triassic, New Red Sandstone.

The Pocono series, it will be seen on reference to the table above, forms the lower portion of and with the Mauch Chunk Red Shale (XI) comprise the Mississippian period. The strata forming the Pocono series is made up of alternating sandstones, shales, slates, conglomerates and thin coal beds, usually too impure for fuel purposes. The standstones vary in color; some are gray, others brown; the shales and slates are gray-dark, and in certain localities, especially near the bottom of the series, red. The formation varies, within comparatively short distances, in thickness from a few hundred to several thousand feet, hence a detailed description of it in one locality would not compare with a like description in another. For example, the series near Mauch Chunk is 1,253 feet thick, while in Huntingdon county, it attains a thickness of 2,133 feet. In speaking of it, the late Prof. J. P. Lesley, State Geologist, says:

"In composition, it is in one region a single mass of hard and massive gray standstone and pudding stone strata; in another region, a triple mass of current bedded greenish sandstone beds, separated by shales containing seams of coal; and in a third region, a man subdivided mass of thin sands and massive limestones."

It is, however, generally overlaid and underlaid by red rocks. The seeming resemblance of this series, at some localities to the Coal Measure rocks and the fact that this formation is underlaid likewise by red sandstone and shale has, no doubt, frequently been the cause of mistaking them for the Coal Measures.

In southwestern Pennsylvania, West Virginia and southeastern Ohio, this formation is the important natural gas horizon known as the Big Injun sand. In Beaver and Lawrence counties, it is known as the Berea grit from which both oil and gas have been produced. Outcrops of the Pocono Sandstone are found in Bedford, Blair, Bradford, Cambria, Cameron, Carbon, Center, Clarion, Clearfield, Clinton, Columbia, Crawford, Dauphin, Elk, Erie, Fayette, Forest, Fulton, Huntingdon, Indiana, Jefferson, Lackawanna, Lebanon, Luzerne, Lycoming, McKean, Mercer, Monroe, Montour, Northumberland, Perry, Pike, Potter, Schuylkill, Somerset, Sullivan, Susquehanna, Tioga, Venango, Warren, Wayne, Westmoreland and Wyoming counties. Thus, it is seen that in forty-three (43) of the sixty-seven (67)

counties of the State, the rocks of this formation come to the surface, but in none of these localities, as has been said before, has a single coal bed of value been found. Prospecting for coal in this formation has been extensively carried on in Perry county and more recently Dauphin and Carbon counties, and in others, though perhaps on a less expensive scale. Near Duncannon, Perry county, Prof. Claypole more than thirty years ago reported that a tunnel two hundred (200) feet in length had been driven into Cove Mountain to two beds of coal, one 8 inches thick, the other 2 feet 6 inches thick. The coal here was poor and badly crushed. Analysis showed that it contained 36 per cent. ash. Such material is useless for fuel. Still another attempt was made to mine coal in Buffalo township near Mt. Patrick, by driving a drift three hundred (300) feet on the seam. No good coal was found from one end to the other in this drift. In his concluding remarks, Prof. Claypole says:

"The coal is soft and crumbles to powder between the fingers. No great quantity appears to have been taken out. No one seems to know much about it and all the spoil has been removed and used for embanking the canal." (Report F2, pgs. 153-155).

In passing, it might be well to add that the Pocono sandstone is not the only formation on which money has been thrown away in Perry county. Some 10,900 feet lower than the Pocono, in the geological column, there occurs a series of black shales called the Marcellus Shales. These rocks have also been searched for coal beds but, as in all other counties, complete failure was and always will be the result. In Huntingdon county, the Pocono formation has been divided into three groups by Messrs. Ashburner and Billin. The thickness of the three being 2,133 feet. About 600 feet from the top of the series, there come in no less than nineteen (19) streaks of coal and coaly material, none of which are more than six (6) inches thick. If all these were together, they would make a coal bed four (4) feet thick. The average thickness of the streaks is less than two (2) inches and they are found distributed through three hundred and thirteen (313) feet of strata.

In a tunnel on the South Pennsylvania Railroad, through Sideling Hill, Mr. F. H. Lewis reports that several coal beds about one (1) foot thick were cut in the Pocono. About one mile below Pottsville, the Pennsylvania Railroad cuts through the upper part of this formation. In this cut, several seams of black shale containing very small coal streaks occur. Diamond drilling was carried on extensively for some months in the Pocono formation west of Mauch Chunk in Carbon county, but nothing of economic importance, it is said, was found. Many years ago, a bore hole was sunk near the village of Monroe in South Union township, Fayette county, penetrating the Pocono. In this, a bed of coal three (3) feet thick was said to have been cut but there is doubt concerning this measurement, and it may be that it was but two (2) feet thick. Unfortunately, no description was given of the character of the bed, and as to whether it was of good quality, nothing now seems to be known. Exhaustive searches at the same horizon at Turkey Nest, four miles from Uniontown, and in the Conemaugh, Loyalhanna and Youghiogheny gaps, where the rocks are exposed, failed to show this seam, hence it is not unreasonable to assume that the bed is not persistent. In fact, the

examination of the Pocono in Westmoreland and Fayette, have shown that nothing of economic importance in the way of coal beds has been found. At or near Lock Haven, in Clinton county, a thin seam of bituminous slate has been reported in one of the upper standstones.

The only seemingly successful operations in coals of the Pocono formations are in Montgomery county, Virginia, where one of the seams attains a thickness of nine (9) feet and, apparently, is continuous along its line of outcrop for twelve (12) miles. The coal, however, is quite high in ash. In Pulaski and Wythe counties of the same State, these coals are mined but the high ash constituent appears to limit their use to local trade. All attempts to mine Pocono coals in West Virginia appear to have been as unsuccessful as those in Pennsylvania. It is likely that the pernicious idea, unfortunately too prevalent, that black shale and slate will be found transformed into coal, if followed under cover or deeper is largely to blame and has induced men to expend both time and money in prospecting for coal in localities where there is absolutely no chance of finding it.

After a thorough study of the records of surface exposures, of drill holes, a personal examination of many of the exposures, and the experiences of others together with the knowledge of the conditions existing at this period of the earth's history gleaned from the rocks themselves, it is reasonable to assume that no coal beds of economic value will ever be found in the Pocono formation in Pennsylvania. Thousands of dollars have already been spent in vain searches, perhaps much more will be in the future, but that failure will result in every case is seemingly inevitable. In conclusion, let us cherish the hope that no more capital will be thrown away in these fruitless endeavors.

**MR. STOUT:** Can you tell any reason why, just north of the Blue Mountains, here in the Devonian System, we do not find oil and gas the same as they do west of the Alleghenies?

**MR. HALBERSTADT:** There are certain conditions that seem to be absolutely necessary over oil pools. Where you have the rocks on the high pitches, high angles, the outcrop comes to the surface. Now, the rocks are porous and if there is any oil there, it has volatilized and gone off as gas; and in the same way, if there has been any natural gas there, it has gone off, because these things come to the surface and work their way right out. The structure where they find these oil and gas wells is a rounded sort of a dome, a domelike structure, not that it is not solid beneath, because it is, but you see in that way the gas and the oil has no chance to escape and it is overlaid generally by a very close textured slate or shale, something from which the material cannot fly away.

**The CHAIRMAN:** If these are no objections, this report will be filed with the Secretary, and we will proceed to the next number on the program, which is the report of the Agricultural Geologist, Mr. Stout.

Mr. Stout then read his paper as follows:

REPORT OF AGRICULTURAL GEOLOGIST  
History, Agriculture and Ginger

By Mr. W. H. STOUT, *Pinegrov<sup>e</sup>, Pa.*

Mr. Chairman and Gentlemen of the State Board: If you take the map of Pennsylvania, you will find a section of country just about 40 miles east of here, Schuylkill county—a whole lot of people don't know anything about Schuylkill county, but we claim to be something of a county. We are among the first—Schuylkill and Luzerne—were the first two counties that came under the provisions of the new Constitution when we had more than 150,000 people in there, and you may be surprised to know that so much science came from one county. Here is my colleague, and here is one of the members of the State Board and some visitors from Schuylkill county. Now I want you to familiarize yourselves with Schuylkill county because you are paying a tribute to our coal operators, you are paying ten to fifteen cents a ton now for all the coal you consume that is taken out of our mines. We expect to get that money in our district to make good roads.

We have something else that we are not so proud of. Among all this population that I spoke of, we have 1,250 saloons. We have a magnificent courthouse and a big jail. We have an almshouse and an insane asylum and all three are full now. What connection there is between these saloons and the almshouses and insane people, I don't know, but I think they are closely connected. I have paid some attention, listening to these talks that we hear at our meetings here and elsewhere about the prosperous condition and the great crops they raise in European countries. Now, I have spent time and quite a considerable time to discover some of the reasons why these things are as they are. I just read yesterday in the last number of the Literary Digest, that in England the farm laborers get \$4.50 and \$5.00 a week for service. If we would come and offer our people \$4.50 and \$5.00 a week, they would laugh at us, but yet they are so prosperous over there—they raise double the crops we do, and why? I studied the problem and found that their conditions are entirely different from ours, their climatic and geological conditions and vast population gives them cheap labor that they can afford to employ in producing these large crops.

I have here, to prove the assertion, a paper that I collected just within a few weeks now, showing what the people do over there to make these large crops. Now the concensus of opinion of these different Experiment Stations, including that at Darmstadt, attribute it to the extensive use of fertilizers which runs from 50 per cent. to 70 per cent. It is surprising to know that those European countries use fertilizers even more extensively than we do in this country.

THE REASON WHY

Out attention is frequently directed to the crops produced in European countries where, during the present generation, crops were greatly increased, nearly doubling the yield. Prof. Hopkins wrote

to various European Experiment Stations for information, asking to what factor the increase was attributed, whether to the use of improved seed, to the use of plant food in commercial fertilizers and stable and green manures, to better rotation of crops, or to more thorough tillage:

Holland replied: "First—The proper use of commercial fertilizers. Second—The improved variety of seed."

England replied: "Much poor land left down in grass; less acreage cultivated. The extensive use of fertilizers and feeding stuffs, cotton seed, linseed cake, corn gluten and others. Improved seed and better tillage."

Germany replied, (Gottinger): "Fifty per cent. to artificial fertilizer. 25 per cent. to better tillage encouraged by larger crops. 15 per cent. to better seed. 10 per cent. to crop rotation."

Germany (Kalla): "Improved seed. The larger and more intelligent use of artificial fertilizer. The better tillage. The better rotation of crops."

France replied: "First—Fifty per cent. use of farm and commercial fertilizers. 30 per cent. better cultivation. 20 per cent. better seed, improved varieties. Second—Effect of fertilizer 70 per cent. Better cultivation 20 per cent. Better seed 10 per cent."

England, (London): "Improved tillage, drainage, use of lime. Increased manure from purchased feed, oil cake, etc. Rotation of crops and increased supply of artificial fertilizers."

Germany, (Bromberg): "The extensive use of artificial fertilizers. The care and use of manure. To green manuring. To cultivation of legumes. To better rotation."

Germany, (Koenigsberg): "Improved seed. The greatest use of commercial fertilizer in Germany than in any country except Belgium. Rotation of crops. Better cultivation."

Germany, (Darmstadt): "Best seed, deeper and intensive cultivation, green manures, the ever increasing use of artificial fertilizer."

Italy (Creelman of Ontario from address, Illinois Bankers' Ass'n.): "A country twice the size of Illinois, used about (1907) 1,050,000 tons of phosphate, 90,000 tons of nitrogenous fertilizer, and 7,700 tons of potash salts. Take one-third of potash exported from Germany, imports from other countries additional and uses upward of 1,000,000 tons or more slag phosphate."

When I tried to prepare a little something for this occasion, I didn't know how to head the article. I finally concluded to give it the title of Geological History and Agriculture. There is something else contained, however, that I didn't find any definition for in the dictionary; so I called it "Ginger." It is not to be expected that a plain farmer, in the period of twenty minutes, without any expected remuneration as an incentive, should inspire one to his best efforts. Volumes might be and have been published on every one of the themes of geology, history and agriculture, by noted authors; so it is difficult to produce anything new or original.

Geologically the earth has passed through various stages of tropical, semil-tropical, frigid and temperate climatic periods during which the various formations, a great variety of deposits of minerals and metals in the interior, and a superficial covering termed soil were formed. Investigations prove the same conditions to have prevailed on both the Eastern and Western Hemispheres, since the same rocks and soils are found in all countries. If the United States Soil Survey should test the soils in Europe, Asia and Africa, the same deposits of Dekalb, Upsher, Hagerstown, Frankstown, Lickdale, Conestoga, Volusia, Dunkirk, Norfolk, etc., would be found of sand, clay, loam silt and muck adapted to various crops, and known from experience what crops are best suited to the various localities. General Geology, one of the most interesting and fascinating studies is becoming more popular, and together with Astronomy is not considered so much in conflict with the Mosaic record as it was during the dark ages when philosophy and science were regarded as pernicious heresies. Superstition and bigotry retarded the advancement of scientific knowledge many centuries to the detriment of human progress and intelligence. Although we may fancy scientific agriculture to be a new science, it has been a study for centuries and many books and essays are in existence, such as those written by Varro, Cato, Virgil, Pliny and Columella. Since B. C. 116 to modern times, agricultural literature is extant. The Arabians were skilled in methods of irrigation, the use of manure, and the raising of improved breeds of cattle. Rice, coffee, sugar, silk, cotton, wool, leather, etc., were among the industries that engaged their attention, together with mining and metallurgical art, and the advancement of the sciences along other lines. The present generation takes pride in their accomplishments and progress, but that the ancients had attained to a high degree of efficiency is evident from the history handed down to us. The ancients attempted to erect skyscrapers years ago, but the first effort was a failure after forty years of wasted labor, through having such a variety of workmen and such confusion of languages so that the effort to reach the heavens failed and they had to give it up in despair.

During recent years, soil physics, soil chemistry and agricultural geology have received extensive attention by the National Government, the various States and individuals. Employing so many talented scientists and specialists on soil problems, the common tiller of the soil cannot hope to cope with the complicated problems involved in the art of agriculture, except from a somewhat superficial knowledge and experience. Perhaps all the farmers present have read and studied the publications on the subject, and this discussion may infuse a little enthusiasm and create a desire for additional knowledge about the earth and the fulness thereof.

In relation to the relative size of the earth, the soil, the support of all animal life during past ages and their dependence for the future, is that little film spread over the earth in the proportion of a layer of tissue paper over a grape fruit. It would be a great calamity to have a cataclysm destroy most of the creations of men's hands, however, if they had left the soil and a year's crops, the human race would survive and eventually reconstruct the machinery to restore to a normal condition the industries of the world. Having only

two-fifths of the globe habitable, and that only in parts (the remaining three-fifths being ocean) there is relatively only a fraction of the globe suited to the production of crops for the maintenance of the human race, and if crops should fail for one single season the consequences would be too shocking to contemplate. The soil which we are tilling is the product of nature's laboratory, a restless chemist, ceasing neither day or night, in calm and storm, in heat and cold, ever active.

Since the earth has assumed form, the elements have been at work building up and destroying and ceaselessly changing the solid rock into fragments and again reuniting the particles to form new deposits. Geologically the soil is new, and fortunately while being lost it is also renewed by the same agencies that have been at work before the earth was habitable. Reflecting upon the fact that all living things, vegetable and animal that existed during the past ages, to within recent time have perished and yielded their remains to nature's cauldron, where all things are purified, separated and restored to their original elements, nothing lost, nothing gained, with the exception of what is lost by the improvidence of the human race and dissipated as waste in the oceans. Every particle of soil existed in the primary rocks, and in the air at some remote time in a gaseous or molten condition, which cooler in space, when all the minerals, metals and gases were separated according to their specific gravity and chemical affinity. It is a matter of temperature only that determined the separation of all the elements into their respective divisions.

Historically this hemisphere is called the New World, but geologically, it is the oldest continent on the globe, unknown to history until within a little over four hundred years ago. The inhabitants found here, maintained themselves upon nature's abundance of game, fish, fruit, berries, etc., with a few cultivated crops, not drawing upon soil resources to any extent and not concerned with national conservation problems of field, forest and mine. Considering the brief time that this country has been occupied by the Aryan race, they had no concern until recently regarding the future. It is now beginning to be realized that the extravagant, wasteful, almost prodigal and riotous living of the people of this country is creating a CONDITION, and not a THEORY to be met in the near future if the nation's prosperity is to continue.

Agriculture is recognized as the most useful and necessary industry, at the same time regarded as a menial, despised occupation, too degrading for the weary, shrewd, cunning and those of aristocratic tendencies to engage in. So long as this class find it more congenial and less tiresome to farm the farmer than to engage in tilling the soil, they would prefer preaching before practice. Farmers are patient, and anxious to learn how to improve their condition, but tire of listening to those language picture paintings offered them as bouquets, knowing that they are not genuine, without taste or smell. It is a laudable endeavor to stimulate and encourage the husbandman, but not with fables about corn raised at 10c a bushel; a quart of strawberries from one hill; 100 chicks from 100 eggs; 300 bushels of potatoes on an acre, and others of like nature, because they are misleading both producer and consumer.

The one universal problem now is the high cost of living. All sorts of reasons are advanced to account for it. The indolence of farmers, the surplus gold, the greed of corporations, the extravagance in public affairs, are some of the reasons offered, yet another is, that it is the high living that is expensive more than the high cost of living. The latter is a logical reason, but not the true one. The world's increasing population with little more unoccupied land to lay under tribute to produce cheaply the necessities of life is a more potent but yet not true reason. With the great area of virgin soil, once considered inexhaustable, this country from its abundance supplied other nations and invited the oppressed from all quarters of the globe to share in the great wealth stored in the valleys, hills and plains of this country. The products of the soil have nearly reached the limit and soon will produce only what is needed by our increasing population. It costs money to restore fertility to exhausted land. An ounce of fact is worth a pound of theory, and an ounce of available plant food is worth a pound of insoluble material in the soil.

The true reason for the high cost of living is contained in the last census report and the year book for 1912. During 54 years up to 1912, the wheat and wheat products exported amounted to \$5,884,000,000. About one-fifth of the crops went abroad. The value in dollars represents also the number of bushels, the price averaging a dollar a bushel, so that according to chemical analysis, the fertility value at 20c per bushel amounts to more than a billion dollars. During five years, 1908-1912, animal exports not including packing house products amounted to \$108,691,102. In 1908—\$34,101,289; 1909—\$22,645,488; 1910—\$17,447,735; 1911—\$19,048,653; 1912—\$15,447,987, a decline of nearly \$19,000,000 during five years. This accounts for the high cost of beef. Cotton exports in the same period of five years amounted to \$2,436,794,250. Cotton exports increased while grain and livestock diminished. The fertility value of all farm products is almost beyond computation, most of it was practically lost to our soil, being sent seaward through the sewers into the Atlantic Ocean, and no care taken of human voids anywhere as a rule since the country is settled. The crops produced on the farms of this country in 1912 amounted to over nine (9) billion dollars, raised on over six million farms. Dividing this vast sum among all the farms, averages \$1,500 as the share of each. The average value of all farms is \$6,500 so that the dividend for interest, taxes and all expenses for each farm is a little less than .025 per cent.

#### WHY DO THE BOYS AND GIRLS LEAVE THE FARM?

To maintain the fertility of the soil is the problem now. The fertilizer bulletins from many Eastern, Middle and Southern states show that they are using commercial fertilizers in large quantities, costing the farmers much money. The great grain growing State of Indiana, in 1912, used \$3,465,636.32; Georgia, the great cotton state, over nine million dollars' worth; the Keystone state, in diversified agriculture, probably nearly eight million dollars' worth. In Kentucky, there were 632 different brands registered in 1911, which is about one-half of Pennsylvania's registry. Increasing taxes, the cost

of labor, fertilizers and other supplies make farming expensive, for which the consumer must pay. Eastern agriculture cannot much longer depend upon the west and south for cattle feed. The prices have already advanced on some products 100 per cent. and no prospect of getting cheaper. It is just a bit tiresome to read and hear some of the so-called experts calling farmers soil robbers, ignoramuses and advising, this, that, and the other about which they know nothing from experience. The knowledge they possess is obtained from reading theory by some would-be scientist, whose knowledge is obtained in pot culture in hot houses under abnormal conditions not applicable to practical agriculture.

There are certain periodic crazes sweeping over the country from time to time. Once it was silk culture, Belgian hares, skating rinks, baseball, football, and hobble skirts are some of the late ones, and the use of lime once so common that much land was completely exhausted by its constant use, is gaining favor. The victims of the Good Roads mania are convalescing, and there is hope for their ultimate recovery. Among the things recently advocated to improve the soil is the use of ground limestone, floats from phosphate rock, sulphur and rotation of crops. Experiments are going on testing the usefulness of raw material in agriculture with anticipated favorable results. Crop rotation has been practiced a long while, and there are numerous instances where without resorting to sources outside of the farm to restore fertility, depending upon the common rotation of clover, corn, oats, wheat and grass, finally had only crops of cinque foil, mullien, dewberries and poverty grass practically rotating themselves out of house and home and only saved from becoming a public charge by selling out, or timely demise. An impoverished farm, dilapidated buildings, general unthriftiness does not appeal to the boys and girls. Driven in despair to seek more congenial environment, they look for more leisure, more pleasure and more enjoyment elsewhere. From the rostrum, counting house, publication bureaus, bankers, railroad presidents, executives, penny-a-liners, dailies, weeklies and periodicals, farmers are admonished to greater economy and efficiency, and to produce larger crops. Battling with the elements of heat and cold, drought and storm, sleet and hail, beetles and bugs, mites and lice, caterpillars and worms, blights and rots, mildew and rust, thunder and lightning, seemingly conspiring to destroy the fruits of his labor, while he eats his bread with the sweat on his brow, the farmer has learned within recent years that maximum crops are not remunerative. The fertility loss, extra labor and handling for reduced prices, sometimes less than the cost of production is no incentive to increase crops and does not appeal to the average farmer. If factories and furnaces, mills and mines were operated on the plan of maximum production and their products thrown upon the market like farm crops, it might help to reduce the cost of living and increase receiverships and bankruptcy. Farmers are not regarded as apt students, but with the school teachers and the Grange abroad in the land, they are absorbing some of the lessons taught by experience and intuition. The Grange is preparing to take charge of our Government and make it one of farmers, by farmers, for farmers, and the industrial classes instead of a Government by lawyers for special privileges and usurpers.

It is gratifying to know that the Administration and the State Board of Agriculture favor Woman Suffrage, the first step in that direction having been in admitting to this august body on equal terms with the members and the right to vote. When women have the right to vote and hold office they will help to make better laws, help to repeal some of the pernicious ones on the State books, and banish the liquor traffic from the country. It would be well to resurrect the old hymn and practice on it, "There's a Good Time Coming, Hallelujah."

A word of admonition before we separate and return to our several boarding places. Before dispensing tips, take particular care to use no finger bowls that are not thoroughly Pastuerized, sterilized and fumigated. There may be great danger of infection from all sorts of bacteria and germs, especially during Legislative sessions.

The CHAIRMAN: This report is also ordered filed with the proceedings of the Institute. We will now hear the report of Mr. B. Frank Wambold, of Sellersville, Chairman of the Committee on Cereals and Cereal Crops.

Mr. Wambold then presented the following report:

#### REPORT OF COMMITTEE ON CEREALS AND CEREAL CROPS

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By B. FRANK WAMBOLD, *Chairman.*

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The year 1913 shows the highest value in all cereals—a grand total of 4,591,000,000 bushels, with an estimated value of \$2,896,000,000—5 per cent. higher than any value ever reached before, 9 per cent. above the average of the five years preceding. This increase is due largely to the increase in the value of the wheat and corn crop.

#### WHEAT

The largest wheat yield ever experienced in this country is recorded for this year—a total of 763,000,000 bushels, the value of which is estimated at \$610,000,000. Pennsylvania alone raised 21,-862,000 bushels on an average of 1,286,000 with an average yield of 17 bushels per acre. The year preceding showed an average of 18 bushels per acre, the value of which is \$1,310,000 less—caused by the decreased production per acre as well as the decrease in the price (market) 95c and 91c respectively.

#### CORN

The estimated value of this year's corn yield throughout the country far exceeds that of any previous year. The total value of the crop being \$1,692,000,000—an increase of 12 per cent. in value covering a period of five years. The production this year was 2,447,000,-000 bushels—the production having been exceeded in previous years. The drought throughout the corn belt being one cause—the loss of

production being counterbalanced by the increase in the market price. The acreage in the country totals 105,820,000, of which Pennsylvania furnishes 1,463,000 acres, an average of 39 bushels per acre—3 bushels per acre less than the yield in 1912, due evidently to the late frost in June, which affected one-half of the entire State; the drought also in the central and northern part being a contributing cause, but worst of all was the early September frost, which killed the corn before it had matured, this covering half the area of the State.

#### RYE

The production of rye in the State of Pennsylvania compares favorably with that of any previous year. The acreage being 280,000 and the yield  $17\frac{1}{2}$  bushels per acre—the estimated value of the product being \$3,626,000. There was an increased acreage of 400,000, which is doubtless the basis of the increased valuation of the product, this year's yield being valued over  $2\frac{1}{2}$  millions in excess of last year's crop.

#### OATS

With one-half million less acreage than in 1912, the yield of oats in this country was 300,000,000 bushels less, the decreased acreage being evidently the cause of this shortage in production. It is a products of every state in the Union. Iowa, Minnesota, Illinois and Pennsylvania being the chief states in the order given. The total yield in Pennsylvania was 35,774,000 bushels and the estimated value \$16,456,000.

#### BARLEY

The acreage of barley is the same as last year's—the average yield per acre being 23 bushels as compared with an average of 29 bushels in 1912—a decreased production of 45,635,000 bushels. The decrease in Pennsylvania alone was 10,000,000 bushels.

#### BUCKWHEAT

The acreage of buckwheat during 1913 was decreased by 36,000—and the production also decreased 5 7-10 bushels per acre. The value of this product is estimated at \$10,445,000, over two million dollars less than the value of this product in 1912. Pennsylvania, with a yield of 5,180,000 bushels and an estimated value of \$3,781,000 easily leads in the production of this cereal.

#### COTTON

Cotton is produced in only 14 states and this year's crop exceeds in acres that of the previous year by two million. Notice that there was a decrease of 7 9-10 lbs. per acre in production. The value of the crop is \$797,841,000—an increase in the value over that of 1912 amounting to sixteen million dollars. This is due to the increased acreage.

#### FLAXSEED

This product comes from ten or twelve states; North Dakota furnishes about one-half of the total yield of the country. The pro-

duction of this State was 7,200,000 bushels. Throughout the country there was a decrease of ten million bushels this year as compared with 1912.

#### RICE

This staple article is raised in 10 states. Louisiana excels in acreage and yield, 11,760,000 bushels were produced in this State alone. The total yield was 25,744,000 in the ten states and its value approximated at \$22,000,000.

#### THE HAY CROP

This crop ranks third in value as compared with other crops. The year 1913 has yielded 64,000,000 tons—a decided decrease over last year, which amounts to 8,000,000 tons. Many factors enter to cause an increase or a decrease. New York leads in the number of tons, Iowa follows, and next comes Pennsylvania, which raised 4,000,000 tons, valued at \$61,775,000—nine million dollars less than the estimated value of the product in 1912. Hay is one of the crops to which the Pennsylvania farmer should give more attention. To increase the fertility of the soil it becomes necessary that clover be produced, not forgetting that the soil's fertility is the principal asset of the farm and farmer.

#### PROSPECT

The acreage of wheat according to the fall report shows an increase of 8 6-10 per cent., the largest sowing on record. The acreage of rye is 1 1-10 less than in 1912. The conditions of these crops at present are exceptionally favorable and are prevalent throughout the entire country.

#### CONCLUSION

Well may our country boast of its large fields and acres. Proud that it is still a large farm—when we remember that more of her sons are engaged in what pertains to the farm and its equipment as compared with manufacturing activities. How boastfully do we speak of a ten billion dollar crop of the year 1913. Well may we be proud of the productiveness of our soil. Let us, however, STOP and LOOK and LISTEN. The billions of which we speak represent a yield in tons and bushels—smaller, however, than in 1912, though the farms have increased to approximately 6,600,000 farms.

Intensive farming is becoming indispensable, and hence Brain and Brawn must be employed. We must give more to our soil if we would wish to take from it. We must study the nature and needs of it before we can with any degree of success harvest what soil is able to produce under favorable conditions. The population is rapidly on the increase and the tillers of the soil do not multiply in proportion. We need more for the cities and in order to supply those needs we must have more who are willing to take care of the soil which is to supply the demand. Though the farms show an enormous cash yield, let us not forget to note that 52 per cent. of farm production is never sold or put to the market; 20 per cent. of the actual farm production is consumed on the farm, which reduces the real

cash sales by one-half. The average farmer has, on the basis quoted, an annual income of \$900.00, out of which he must pay for maintenance and equipment, as well as taxes and help.

Since so much depends on conditions which are beyond the control of the tiller of the soil and since the factors which enter into making farming successful are so many and manifold, the co-operation of the consumer and farmer must be emphasized. Soil fertility is the one essential which needs the minutest attention. Let us hope that in order to encourage the farmer, the State and nation will seek means to furnish him with the necessary information and assistance. The agricultural institutions will become a special and important factor in the enhancement of soil fertility and the study of conditions and the protection of the farmer. Let us hope for improved avenues of efficiency in this very important item in our country's fundamental asset.

The CHAIRMAN: This report is also ordered filed with the proceedings. If there is one thing that makes the farmer sit up and take notice, it is that of taxes. Jones may pay the freight, but the farmer pays the taxes, and we will now hear an address on "The Farmer and Taxation," by the Auditor General of Pennsylvania, Hon. A. W. Powell.

Mr. Powell's address is as follows:

### THE FARMER AND TAXATION

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By HON. A. W. POWELL, *Auditor General*

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Mr. Chairman and Gentlemen: Your Chairman took part of my speech when he said that the farmer pays all the taxes, although I did not expect you to recognize that as anything new. In dealing with taxation, I am discussing the oldest subject, except the farm and the farmer, for so far as I know there never has been any time in the history of the universe that, close after the farmer, there was not the tax collector. And I believe that's true yet. Fortunately for me, however, I don't have to collect taxes directly from the farmer, for there are so many of you; but, indirectly, all taxes do come from the farmer; and your Chairman's statement is absolutely correct when he says that the farmer pays the taxes. The land produces all the wealth there is in the world. The land of Pennsylvania produces all the wealth there is in Pennsylvania, except that which has been drawn from the contributions of other people. We have natural resources such as coal, oil and gas, but all the wealth originally comes from the land.

The subject is so old that I first prepared a paper on the theory of taxation. I want to get my idea, and I want to get your ideas, for so long as I have lived in Pennsylvania—and I have lived here all my life,—I have found more real education and more plain common sense in the farmers of the State than I have found in any other particular class. I have been called upon to sit with those grouped about the table in political counsels, I have met great legal lights in

the trial of cases and the making of arguments before the Courts, I have known famous politicians and great preachers and learned professors, but if I want to know what the people think, and if I want to hear the plain common sense of a proposition I try to go where I can meet some farmers. I want to say to you that the clearest, most clean cut explanation I ever heard of the matter of roads, which you have just discussed, was from a group of farmers in the little village of St. Thomas down in Franklin county. I went into the little hotel there and sat down behind the stove while dinner was being made ready, and those farmers talked for half an hour without knowing who I was. The supervisor of the township and a lot of other farmers were there and as I listened to them I thought I saw the common sense of the proposition.

I feel it an honor to be allowed to come here to talk to the farmers. I was raised on a farm; the first dollar I ever made was made on a farm, and when I got it I was wealthier than I ever had been before, and now, or ever will be again. That first dollar was the biggest dollar I have ever seen. Sometimes as I sit in my office in the corner of this building I think that I am still connected with the farm in a way,—that I am a sort of farm animal; for the Auditor General of the State is a species of goat. He has the last say, and when a fellow has a proposition he hasn't been able to get through, he puts it up to the Auditor General, and then they send around to see if they can't get a warrant. The Legislature meets every two years and the members will hold all the bills back—I helped them to do it for two sessions—till the last. Then they pitch them in and pass them and nine-tenths of the bills are not read by one-tenth of the members. That is a fact and we may as well confess it. And then they don't know exactly what has been done. The Chairman of the Appropriations Committee tells the representatives of a hospital or some other institution, "Oh, yes; you'll get the appropriation you want,—“we'll put it in the bill.”” Then he forgets his promise—maybe it was only a political promise—and the appropriation isn't included in the bill; and then the friends of that institution come down to ask the Auditor General if something can't be done. They say, “Oh, well, what's the law between friends?” We have such experiences nearly every day. But you are not particularly interested in the troubles of the Auditor General. You are interested, however, in the subject of taxation, and vitally interested in that.

I want to take a few minutes of your time to discuss the theory of taxation. All of the expenses of government are lumped. The aggregate expenses must be borne by the aggregate of the people who are governed, who must provide the revenues to balance the expenses. Revenues are derived from two classes, one little class and one great class. The first, is that of voluntary contributions. Did you ever hear of a voluntary contribution to the expenses of government? I don't know whether any of you have ever made them or not, but last year there were \$531.41 in voluntary contributions to the expenses of the government of Pennsylvania. They went into a fund we call the Conscience Fund. They just come in envelopes in cash, to the Auditor General; and when he receives money in an envelope that bears no name and contains no other enclosure it is taken over to the State Treasury and dumped into the Conscience Fund. When we get such

a contribution we hope and believe that somebody is going to sleep better because that \$50.00 or that \$100.00 is in the Treasury of the Commonwealth. These contributions come in various amounts, but you need not bother about them, for voluntary contributions will not help you very much to pay the taxes.

The second source is involuntary,—the amounts you have to pay to the government. They are divided into two classes, the first of which includes the sums you have to pay for some special service the government renders or for some special privilege the government gives you. You pay for a special service when you buy a farm and go to have the deed recorded. The government of the State charges for the recording of the deed, so you pay a fee and fees are charged by the Secretary of the Commonwealth and by other public officers. The other class of involuntary payments includes those for special privileges extended. I know that farmers don't have any special privileges, and don't have to pay any license taxes unless they happen to be engaged in the sale of fertilizers. When I look over the list of receipts of the Commonwealth of Pennsylvania and find fertilizer license fees have been turned into the Treasury by the Department of Agriculture, and note receipts from two or three other license sources of that character, I wonder why in the name of common sense we tax farmers in this indirect way. Why don't we just go to them frankly and say, "Give us the money, and buy your fertilizers where you please?" In reality this is the tax on the farm, but it comes under the subject of licenses.

Leave aside those things for which you get some privilege or some service rendered and come down to the second class of involuntary payments or taxes proper. A tax is the enforced contribution of a citizen, to help pay the net operating deficit of the government. I say net operating deficit, for you will see at once that if for every service rendered him the citizen paid the government a price sufficient to cover the cost of that service, and if every man who was given a special privilege paid the full value of that privilege, you would not need any taxes. Wouldn't you like to see a day in which the government would charge the exact cost of services and privileges upon those benefited by them? No doubt you would, but that day never has been and never will be, so we may as well come down and discuss the question of how the government raises the money which pays its net operating deficit.

Leaving out the new income tax of the National Government, which I suppose not many of you are worrying about, inasmuch as it taxes only those incomes of \$4,000 or over, there are two branches of government which collect taxes from the citizens of this Commonwealth; that is, the local government and the State government. During the last campaign you were bombarded with the statement that the farmer does not pay any taxes to this State. That is, because he does not just come up directly and pay cash into the State Treasury, he does not pay any State taxes. I do not agree with that, and never did agree with it. You pay taxes to the State and so does every body else who lives in the State. A citizen pays taxes either directly or indirectly. If he pays directly, he knows how much he pays; if he pays indirectly, God knows how much he pays. The ideal system of taxation would be that under which, after every service

rendered by the government, and every special privilege extended by the government had been paid for to its full value, the net operating deficit, if there were one, would be paid directly by all the citizens according—and I want you to get this—according to the citizens' ability to pay, not according to any other method, or any other distinction. No man should pay taxes because he is so tall or so short or so fat or so lean, because he is a farmer, a manufacturer or lawyer, but because he is a citizen; and he should pay in proportion to his ability to pay. The burdens of government should be borne by those who are able to bear them.

That is not the theory of taxation in Pennsylvania under present laws. The theory of taxation in Pennsylvania is not that the man is taxed, but that the property is taxed. That is not right and it is not really true. The owner of the property is taxed even under our present system,—taxed to the extent of his ownership thereof. If the farmer owns the farm he is taxed to the extent of its value. The farmer, not the farm, pays the taxes. The farm is only a security for the tax, the government's collateral to insure that the tax debt will be paid. If it is not paid they pursue the farmer; and then the law still is, pursue the farm; and if there is not sufficient personal property upon it to cover the amount of the tax, they still have a right to take the farmer and throw him in jail. This does not happen often, but that is still the law. I was talking yesterday on this subject to the REAL ESTATE BOARD of the City of Pittsburgh, and Senator Flinn, who happened to be there, said, "There isn't any imprisonment for debts." I replied, "You may think so, but I would not advise you to take a chance on it by refusing to pay your taxes, because that still exists."

I think most of you will agree with the theory of taxation as I have stated it; that the tax should be upon the person and should be commensurate with his ability to pay. Here is a man who owns a farm, has a family of six or eight, and can barely make the farm support the family even though he is frugal and energetic. Adjoining his farm is one of equal value owned by a man with no family. I do not believe that the first man should be taxed as heavily as the second. He is performing his decent duty to society by raising a decent family, under decent circumstances, and I maintain that the correct theory of taxation requires that he be taxed less than his childless neighbor; that is, according to his ability to pay.

**SECRETARY CRITCHFIELD:** But suppose that one of these men, either the one with a family or the childless man has a mortgage on his farm for two or three thousand dollars?

**MR. POWELL:** The property should not be taxed as property, the man should be taxed as the owner of the property, and I cannot answer your question intelligently until you tell me which man is taxed upon which farm, or which man has the mortgage. If the mortgage is on the farm of the man without a family and he still has a surplus of ability to pay, he should be taxed; but the man who has a family, ought not to be taxed, even if he has no mortgage, if he has no ability to pay taxes without robbing his family.

A Member: "Who would be the arbiter for all that?"

MR. POWELL: I will concede that is a difficult question, but let me point out to you that the United States Government has assumed such a task in connection with the new income tax. Remember, if you please, I am dealing with a theory and am outlining an ideal. I do not say that the theory can be worked out absolutely, but I do say that it ought to be recognized by the government as a correct theory of taxation, and that government officials ought to work it out as completely as they can instead of aiming at the taxation of property instead of taxation of the man and regardless of what other services, aside from payment of taxes, the man renders to society.

DEPUTY SECRETARY MARTIN: If you can work that out, you will do a real service.

A Member: Are you going to make it possible.

MR. POWELL: I am not talking about making it possible. You are asking me to explain in a few minutes something that the wisdom of the ages has not yet worked out. I am not an omniscient man, but I can see along a straight line. But if you ask me to tell you how to walk in a straight line when civilization has constructed buildings on it and has thrown rocks in the way, and there are streams running through it with bridges across them to keep everybody from walking in a straight line, I can't tell you how it can be done. If I could work that out, I would be a great man. I wouldn't be standing here talking to you, but I would be consulted by all the governments of the world. No I cannot tell you just how to work it out, but I think you will agree that the citizen should be taxed, not the property, and that the tax imposed upon him should be assessed according to his ability to pay.

I believe that the man who lives in a house costing \$100,000.00, when he has no need for a house so large and costly as that, is wasting society's wealth and is doing society an injustice; and I think you believe it too. A man has a right to that which he honestly gets and honestly uses, and if this principle had been written into the law, the farmer would be a hundred per cent. better off than he is today. In Pennsylvania we have a law that exempts from taxation all property employed in manufacturing. Will you tell me why that exemption should not apply to the farm occupied by a man and his family instead of to manufacturing property? Why should more than a hundred million dollars' worth of property in the county of Allegheny, in which I live, be exempt from taxation because it is used in the manufacture of rails and beams and things of that kind, which people cannot eat and cannot wear? Isn't that putting a premium upon complexity of civilization? I hold that it is, and I say that since this government's creation, we have been putting a premium upon complexity of civilization; that the governments of all the States or practically all, have been putting a premium upon getting away from the land. If anyone dissents from that, I should like to hear from him, for I am ready to prove it. The government of this State has been putting a premium upon getting away from the land, although the land is the only thing that makes any wealth in the world.

Perhaps I had better leave it with you just about there, or some of you will begin to suspect I am a farmer still. Unfortunately, I am not. I have an idea that sometime I should like to get back on a farm, but I don't know when that will be. There are a lot of other things to be done in the world, and I have got to do my share. I am the economical officer of the State government and I am just as busy trying to reduce the high cost of government as you people are in trying to reduce the high cost of living by growing more stuff so that you will get a less price for it. It always struck me as particularly funny for James J. Hill and other railroad men with millions to urge the farmer to raise more crops so that he would get lower prices for them. They never say that if a farmer will do as they advise they will reduce the freight rates. I am not trying to stir up any class sentiment, but you have got to consider your own interests and what is justly due you, and then fight for it. Fight for what is your due and never ask a penny more. If that rule had been in force in the railroad world, in the manufacturing world, in the general trust world of the United States, we would not be hearing so much about the high cost of living and other troubles that affect the farmer—and the public officials.

Now as to State taxation. The State does not tax the farm and it does not directly tax the farmer, as the owner of the farm. It taxes only those forms of wealth which take a corporate form, or taxes the owners of the wealth which takes a corporate form. It taxes under the guise of bonds, notes, certificates of indebtedness, etc., and that tax is four mills on the dollar. It also taxes capital stock according to its actual value, this tax being five mills on the dollar. Then it taxes certain public utility corporations, this assessment being in the nature of both a tax and a license and amounting to eight mills on the dollar of their gross receipts. Those are the millages paid by other forms of wealth in the State of Pennsylvania. It is true that they are sufficient to support the government as it now exists, and it is true that much of the property thus taxed is also taxed for local purposes; but it is also true that much of it is not taxed for local purposes. None of that owned by railroads, is locally taxed; and considerable of that owned by manufacturing companies, and some other classes of property, is not subjected to local taxation.

Such is the system of taxation in Pennsylvania at this time, and I hold that one of the great problems before the farmers of this Commonwealth is the securing of a just taxation. I do not use the words "equalization of taxation," which are heard a great deal in the northern tier of counties. You know from what I said before that I do not believe in equal taxes. Equal taxation would mean that each man would pay the same amount on its value. I do not believe in either theory. I believe that there should be some exemptions to an equal system of taxation, in order to work out actual justice; but I believe these exemptions should be so arranged as to offer a premium to industry, a stimulus to improvement and an encouragement to agriculture, which is the basic occupation producing wealth in this Commonwealth. I believe that if you ponder these things you will think the same way.

We should also make some reasonable exemption to the man for the service which he renders to society, and the man who is worth

\$100,000, or \$1,000,000 or \$10,000,000, and throws his money around the Bellevue Stratford, or similar places, or spends his time on Broadway, should be taxed more in proportion than the man who owns a farm worth only \$10,000 and does not find it easy to make it keep him and his family and give his children a decent education. He is doing his duty to society. I said this same thing yesterday at a meeting where the aggregate wealth represented in the room was, I should say, not less than \$60,000,000, so you cannot accuse me of saying that just to you fellows. One man there was worth from \$20,000,000 to \$25,000,000, and he applauded as loudly as any of them; and there were some other fellows worth a million or so, and they admitted they should pay in proportion to their ability to pay. It is a man's surplus wealth that should be taxed,—a principle the U. S. Government recognizes in its income tax.

SECRETARY CRITCHFIELD: There ought to be an exemption to the man with ten children of a non-productive age.

MR. POWELL: Certainly; and if you don't do that, you will not only have to provide mothers' pensions, but it won't be long until you face a demand for pensions for fathers with a certain number of children. My contention is that justice in taxation is infinitely better than charity which is, in large part, perhaps, caused by inequities in taxation. Why should we run around the block to get back to where we started? We are winding ourselves up in an amazing theory because our fathers said that property, not people, should be taxed; because our fathers made a Constitution which nobody understood when it was made, and which the Courts have perverted since, and which has resulted in inequity to all of us.

A Member: How about a farmer whose improvements, costing \$100.00 is put down by the Assessors as worth \$500.00?

MR. POWELL: Well, if the improvement is made from surplus income, and the farmer does not need its product to keep his family and do his decent duty to society, he should be taxed for it. If he does need it, he ought not to be taxed for it.

A Member: Who is to be the judge in cases such as that?

MR. POWELL: That, gentleman, is the ultimate question for society. Of course, every man would like to be the judge of his own taxes. I cannot tell you who is to be the judge, but I hope it will be honest public official who keeps ever in mind this fundamental principle of taxation,—that it is the person who should be taxed and that he should be taxed in proportion to his ability to pay, and not in proportion to anything else. If there should be any exemption it should not be because of his relation to the assessor not because standing in society or the fact that he wears fine clothes and can of his service to some political organization, and not because of his "get away with it" when he makes his appeal.

A Member: When a farmer makes two blades of grass grow where one grew before, must he be taxed to pay for the man who can't make even one blade grow?

MR. POWELL: No, that's not it at all. If the farmer who makes two blades grow where one grew before, needs that extra blade of grass for his family, and to carry out his decent duty to society, he is entitled to it and should not be taxed because of it; but if he does not need it for these purposes, that extra blade represents surplus wealth and should be taxed. In this last case the farmer ought to be glad to contribute to society in general and to help along the poor man who cannot produce so much.

A Member: I'll vote for you for Governor.

MR. POWELL: Gentlemen, I have got a job now and it's a pretty big job at that, as you will understand, and I am trying to learn something about it; and that's the reason I came here to talk to you. I wanted to know what you thought about it. I am testing this theory out and I want your ideas, for you are the people who must decide what our laws shall be.

I am going to ask you to do something. In Article 9 of the Constitution of the State of Pennsylvania you will find all the Constitution says with regard to taxation. Look it over and see what amendments you think ought to be made. I think it is constructed on the wrong theory, and I want your opinion about it. Don't approach this like the average judge. I have some friends who are judges, and I studied law at Yale University, and I know that judges and lawyers look at a Constitution as if they were a little afraid of it. Constitutions are not sacred. Our fathers made ours and our children will have to live under it if we don't change it. So far as I am concerned, I would rather see it changed while I can have something to do with it and can at least use what little effort I can to see that it is done on the right principles, so that the people who come after me may get a square deal. I am not worrying about my square deal; if I don't get it I will go out and fight for it, but it is my desire that those who come after me shall have a little better chance to get it than you and I now have.

The CHAIRMAN: This address will be filed. Next is an address entitled, "Progress in the School and on the Farm," by Dr. N. C. Schaeffer, Superintendent of Public Instruction.

SECRETARY CRITCHFIELD: I believe Dr. Schaeffer is not present, and I happen to know Dr. Houck will have to be over a hundred miles from here this evening and I will be very glad if he should be called next.

MR. KILLAM: Mr. Chairman, the Roads Committee, which was instructed to report this afternoon, are now ready to make their report at any time.

SECRETARY CRITCHFIELD: I think we'd better have Dr. Houck's address first.

The CHAIRMAN: When I was a young man teaching school, attending teachers' institutes in the county, there was one man more than any other that we liked to see come to the county institutes; in fact, the teachers' insitutes of Indiana county were not thought to be very much unless we had one of the Deputies, one of the mem-

bers of the Department of Education, with us at that time. It was some forty years ago. I make that statement because you will hardly think that either he or I am that old. Now I have the great pleasure of presenting to this body my friend, Hon. Henry Houck, Secretary of Internal Affairs.

## BETTER SCHOOLS A PRESSING NEED OF AGRICULTURE

By HON. HENRY HOUCK, *Secretary of Internal Affairs*

Mr. Secretary, Mr. Chairman, and Members of the State Board of Agriculture: I am afraid that I am interrupting the regular business; if so, I shall not take up very much time. Way up in northern Pennsylvania I had a friend who is not living any more, but he was a great teacher. He had an academy up there and he sent hundreds of boys and girls to colleges and higher institutions of learning. They honored him all over the county and in a number of counties, and whenever there was an educational gathering, they would send for him to preside, they wanted to honor him; but this man was a little unfortunate whenever he got on the floor to speak. He was a great teacher in the classroom, but a little timid and backward when he came to talk to an audience. At one educational meeting, when called upon to preside, he started by saying, "If there are any directors in the audience, I wish they would come forward and sit on the program."

Now, in reference to being introduced, I am very much obliged to the President for those kind words he spoke about the Deputy Superintendents. In northern Iowa, I was introduced to an audience; the Superintendent was called out and he called on a young man to take his place, and when my turn came, he said: "The next number on the program is Mr. Henry Honek, who will try to entertain you." I have been introduced in all kinds of ways and in many states, but I never feel more at home than when I stand before a body of teachers with whom I have labored so long, and I am glad to see my old friend, Dr. Critchfield. He was a county superintendent too, and so was I, and, brother, we were superintendents when they had superintendents.

Now, the school business, of course, will come in right here because that has been my life work, and I'd rather teach school today than do anything else; but it don't pay. It's in the same position that farming seems to be and so I have taken another job, but I'd rather teach than do anything else.

They tell the story about an old teacher who had taught fifty years and he was poor—did you ever hear anything like that, a teacher who had taught fifty years and was poor—and the community took pity on him, they thought they'd give him something, and they elected him squire, so he opened an office in his house and waited for clients to come. One day a constable brought in a man, had him fettered and bound, and the old squire looked up and said, "What have you got that man here for?" "Why, I have arrested him." "For what have you arrested him?" "I arrested him for

bigotry." "What's that?" "Why," says this man, "he has three wives." And the old squire and teacher said, "Gracious, that isn't bigotry, that's trigonometry." So you see that the old business would stick out right away.

First, I will say what I would want to have taught in a good school, I would insist, in every good school, that the common branches be taught thoroughly: Orthography, reading, writing and arithmetic, and geography and grammar first and above everything else. I have had much to do in the examination of schools—normal schools. I have helped to examine thousands and thousands and the weakness was generally found in this fundamental work. On examinations, teachers do pretty well in algebra, geometry and some of the higher branches. Very many of them I found poorly prepared in this fundamental work, and every boy and girl that goes out from the public schools that is not thoroughly grounded in the fundamental branches is a failure and will be a failure all through life; so that's number one.

Inspectors in civil service work and the Postoffice Department and college presidents tell me—I hear it from every side—that applicants come to college and normal schools and in examinations for positions in the Postoffice Department and civil service fail in this very first branch—orthography. What a pleasure it is, my friends, to take up a paper, a manuscript prepared by an applicant where all the words are properly spelled and the capitals are right. You are ready, right away, to vote for a person like that, so that is the thing that, first of all, I would have thoroughly taught.

Then, next after that, if it is a school in the country, I would have agriculture taught. I worked hard on a farm. My uncle had a farm of 150 acres. We didn't have any, but I knew that farm so well—I knew every shade tree on it. I worked hard on that farm. The twenty-first day of June, that's about the time we took the scythes and started to mow, and if I could make \$30 by the time the crops were gathered, I had done well, and that was pretty hard work—much harder than it is now. My father used to call me early in the morning. I often went out with him to plant corn. I trotted ahead in the furrow and dropped the grains of corn and father followed me with the hoe—and sometimes with the handle.

I tell you what we used to have: We'd got out to the farm about four or half-past four in the morning, and the first thing the farmer would tell us, was, "There's a load of hay in the barn to be unloaded before breakfast." I tell you, that was no slow business, that was the hardest work in the whole harvest to me, unloading hay. I didn't always stand on the wagon to throw it off, but sometimes back in the mow where there was no ventilation and the man threw it in so fast that I would be nearly buried; but then we had a great breakfast—scrapple and mush and buckwheat cakes—how they vanished—and country sausage. It was great! There are many good things about the old times. Then about nine o'clock came an extra lunch. We'd gather under a walnut tree that shaded a whole acre—and where are the old walnut trees? Right up where I used to work, there used to be two or three great walnut trees in every field; now they are all gone. That's where we used to sit to eat the ten o'clock meal and I got pretty tired by eleven and very often I looked up to

ward the porch for the hired girl anxious to hear her blow the horn. Oh, what music that was! At the very first peal, I dropped everything and then we had a grand dinner and went out again, and about half-past four, we had what they called supper, and then, when it was a very generous farmer, he would call us up late in the evening and give us another little lunch. Those were great, old times! I tell you what, we are missing so much in these days.

There are three things we are missing very much. There were many good things in the old times. First of all, I'd name the old singing school. The music was so easy, you could tell the notes by their shapes. They didn't all look alike. And how easy it was to learn and how we did sing! Well, now, what's the next? The old spelling matches! The parents would come out and we'd pick our sides and oh, how we learn to spell! Why, these old common branches I sometimes think were taught more thoroughly in the older days than now. One of the reasons is that they didn't have so many branches to teach, and I notice that some of the most progressive states are bringing back the old spelling-bee. And the social side was good, it brought the young people together. What was the other? Perhaps this is the best of all, and it's gone, and that's the old debating society. I have never been an orator and I suppose I never will be, but I wouldn't give for anything the little practice I had in the old red schoolhouse, standing up and debating, "Which is the Greater Evil, Slavery or Intemperance?" As far as I remember, my side always lost. There sat the judges and the critics and the people would come out, and young men would start, boys would start, at 14 or 15 years of age, some of them young, and break down in the first sentence, for they were so timid, but they grew and progressed rapidly and before the term was over, they could stand up and talk to an audience, and talk well. I tell you, the debating society of old was a great institution of the country and brought out many a young man and taught him how to debate and how to act before an audience.

Now I see Dr. Schaeffer has come in, and what I don't know about this subject, he does. I'll tell you about this old-time school—they taught only three common branches. Often we say there were three branches, the three R's, but I think there were four; there were reading, writing, arithmetic and a branch from the orchard. Now, I am glad that the last has passed away. I would never vote to locate a schoolhouse near an orchard. I went through it all. That orchard was right back of the schoolhouse and many a rod I brought that was used on my own back, and yet I won't say one word against the teachers of the olden times. What a battle they had to fight, what difficulties they had to meet, what opposition there was to the public school system! They worked for poor wages; they had many obstacles to meet and many battles to fight, but, in the face of them all, they laid the foundation for our school system deep and strong. All honor to the educators, the veterans of the olden times.

Arithmetic was always my weak point in school, the arithmetic lessons bothered me a good deal, and it was very unfortunate, too, because I went to an old teacher, and arithmetic was a grand thing in the old-time school and there was an understanding that if a boy could work arithmetic very well, he could go over to the girls' side

and help them. Very often Will Toms, who afterwards became a doctor and was on General Rosecrans' staff, would go over and stand with the girls and it took him very long time to explain the problems, and I had to sit at my seat puzzling with arithmetic. I got in wrong on arithmetic at the first; I got into a class that I wasn't quite able to go with them, and that multiplication table even bothered me, especially that ninth line. I used to tell the others, when it came to the tens and elevens, "Take a rest, and I will help you out on that," and I have noticed that it is the habit of boys and girls in school to say, "Nine times four are thirty-two." I did it until the teacher got tired of it and called me up, and they had no chairs then, but he had a bench, and put me over the bench and adjusted—is that the right word?—adjusted me or balanced me on the bench, then took the ruler. That's a strange position to put a boy in, to teach him multiplication, but he brought down the ruler and said, "Nine times four are thirty-six." I knew it the first time and have never forgotten it since.

We ought to teach boys and girls to work in school. Do you know there is a tendency in these days to make everything too easy? The teacher that can make it easy and does all the work himself is in demand. I tell you, it is a great privilege to a boy and gives him a great deal of pleasure when he feels that he has done a thing himself. But in these modern days, that teacher is considered best who paves the way and makes everything easy, and it is a very unfortunate thing. The best thing boys and girls can do in school is to learn to study and work themselves. A little verse comes to my mind here:

"The heights by great men reached and kept,  
Were not attained by sudden flight.  
But they, while their companions slept,  
Were toiling upwards in the night."

The boy that sits up in the evening and the girl that works out the problems with the right kind of suggestion and leadership—those are the boys and girls who are going to make their mark in the world.

What next, should be to teach the scholars good manners. I love to think of the old-time school when the boys and girls came in the morning. Did you ever think of anybody rushing in without greeting the teacher? "Good morning, teacher." "Good morning." I sat at my desk writing my copy and it gave me cheer for the whole day. Some couldn't talk English at all but they managed to say "Good morning, teacher," and when the school was ready to be dismissed, some had a courtesy; I wouldn't insist on anything like that now; I am talking of the spirit of the thing. Every one turned back and said, "Good evening, teacher." And that is not the end of it. When they met the poorest man on the streets who was hammering stones, a poor man who was getting perhaps fifty or seventy-five cents a day and had a hard lot in life, not a boy or girl would pass by without say, "Good evening." Oh, those are beautiful things, beautiful things! Sometimes when I look about and see boys and girls rushing and the way they go and the way they yell, I almost wish that we had some of the good, old manners they had in the days gone by.

I will tell you a little story; you look so serious. This is true, this really happened, this happened in Philadelphia. There was a boy going home and the teacher came by in the evening and passed the house while this boy was playing in the yard and in rather rough language the boy said, "Go to hell." And the teacher said, "Never mind, tomorrow I'll settle with you," and three or four days later, the boy came back and went up to the teacher crying. "Oh," he says, "teacher, don't punish me, don't punish me, I'll never do it again. I thought we were moving away." Well, I think it's a good time to stop, for I have another engagement tonight, but above everything else, don't let us complain.

I stand before you this evening, almost the last day of the first month in the year, and I tell you what's in my heart; this is the best hour the world has ever seen. The best hour. There never was a time when there was as much good done in the world as today. There never was a time when the farmers had a better time than they have today. You can't take up a magazine that don't treat about farming. Look at all our journals. Look at the farmers' institutes that have done so much. Read the papers, read the proceedings. Crowded audiences wherever they go. I don't know of any one subject more prominent in the minds of the people today than farming. There are better days coming yet. We have so much to be thankful for. I often wish I could hear that man lecture again who lectured all over the country. I refer to Dr. Willett, who passed away, not a long time ago. He had a lecture on Sunshine. Don't forget your blessings. Perhaps the first fifteen or twenty minutes he talked about the sorrows and troubles of life, and they were pretty bad, and then he turned one page and said, "This is what we have to be grateful for." He did a vast amount of good as he went up and down.

And then we have the great State College. That's a wonderful institution. I go into a great many states and I want to tell you that the State College, in my mind, compares favorably with any I have seen. There our young men and young women can go and get almost anything they want to study and I say, we ought to be proud of that and of our public school system under the leadership of my old friend, who sits before me and who has made his work such a great success. I refer to Dr. Schaeffer. There's much to be grateful for; let us be happy every day of our lives that we live in the year of our Lord, 1914, the best year that the world ever knew.

**The CHAIRMAN:** The address of the Hon. Henry Houck will be received and filed with the papers. The best crop we raise on the farm is our boys and girls, and the education of them is something to be considered and we will now hear an address on "Progress in the School and on the Farm," by Dr. Schaeffer.

Dr. Schaeffer then addressed the Board as follows:

## PROGRESS IN THE SCHOOL AND ON THE FARM

By DR. N. C. SCHAEFFER, *Superintendent Public Instruction.*

My friends, I used to imagine that I was a younger man than Mr. Houck. Somehow Governor Stuart got me onto that notion. Governor Stuart told us that when he and Mr. Houck and the others who were running for office were in Western Pennsylvania, a gentleman, upwards of ninety years of age, came around and said he wanted to see the politicians. They introduced him to Governor Stuart. "No," said he, "it's that man Houck I want to see." "Why do you want to see Houck?" "Why," said he, "when I was a very little boy, I used to go to school to him." But when a man pretends to talk of the olden times and says nothing about the apple butter parties and corn husking parties, etc., he must belong to a younger generation.

I am booked to talk to you upon "Progress in the School and on the Farm." It is a sort of self-evident proposition which everybody accepts that Progress on the Farm and Progress in the School should and do go hand in hand; but the trouble is that the proposition is accepted as a kind of a blanket term covering a sort of a general notion that we have, and in many instances we are afraid to analyze the proposition. We do a great deal of that kind of thinking in the educational world. If you put above the door of a school the word "Vocational," everybody accepts that as an up-to-date school, and yet they may be wasting the taxpayers' money at a terrible rate. The United States Commissioner of Education told me the other week that the American people are in danger of wasting \$20,000,000 in useless experiments in agricultural and vocational education, and I think the time has come when, like men of common sense, we ought to look at the bubbles which people are continually blowing in the name of vocational education. Very often when you price the bubble and show its nothingness, people see how the money of the taxpayer has been wasted. A professor in Columbia University recently visited the schools of domestic science in three states. He found them teaching the girls how to make fancy cakes, how to cook dainty dishes, and he went home saying, "95 per cent. of it isn't worth a copper. It does not teach girls the essentials of home-making, or cooking, or housekeeping."

The most serious thing has recently been re-emphasized by the figures of the last census. We have all known about the drift of population from the country to the city, and in spite of all that our agricultural colleges and our farmers' institutes and our public schools with agriculture in them have been able to accomplish, this drift seems to go forward more rapidly than ever before. The drift was greater in the last decade than it has been in any decade for the last fifty years. In the years between 1870 and 1880, there were about 100 counties in the United States that had lost population in that decade. In the years between 1890 and 1900, there were 378 counties that had lost population, and in the last decade, that is, from 1900 to 1910, 798 counties, more than one-fourth of the counties in the United States, showed a decrease of population on ac-

count of this drift from the country to the cities. Isn't it time for us to sit down and ask what are the factors bringing about this drift of population from the rural districts to the crowded centers of population? And what makes the problem so very serious is that the last census indicates a less aggregate product in foodstuffs. Between the years 1900 and 1910, the United States produced less corn, less oats, less potatoes, less wheat, and, I understand, less in the way of cattle for the market. The yield per acre has increased; the value of the farm products has increased, but the total production has diminished, while our population has been growing rapidly. There can be only one outcome, namely, increased cost of living.

What seems to be a still more serious problem is the thing that Governor Eberhardt brought out about a year ago in World's Work; there was a dearth of farm hands in the State of Minnesota, and the Governor visited the twin cities, Minneapolis and St. Paul. The benches in the parks were crowded with men out of work, some of the men who were starving, and he went up to these men and asked them whether they wanted work. Oh, yes, they said they could do anything. Well, he said, "You are the men I am seeking. We need so many thousand hands upon the farms." Immediately they became glum. "Go to the farm?" They said. "Why, you've got nothing there but work, no amusements, no evening entertainments. We prefer to stay in the city and starve rather than go to the farm where we will have nothing but work." The truth is, with this drift of population from country to city, there has come about a state of affairs under which the inhabitants of the city are no longer willing to work upon the farm.

What are the factors that have led to this drift from the country to the city? I think that as farmers whom you cannot fool on very many questions, the time has come for us to face this state of things in a serious, common sense, way. Usually when anything goes wrong in the country, the blame is put upon the schools, and when any reform is to be brought about, it is put up to that school teacher who is working for forty or fifty dollars a month. The reform which the newspapers and the churches and the itinerant lecturers and the special associations cannot bring about, is put up to the school teacher, and she is expected to bring about the needed reform. I am prepared to admit that the school is one of the factors which has helped to bring about this drift from the country to the city, but it is not the only factor. So long as the shop, the factory, the store, the counting house and the railroad pay better compensation for work during less hours than the farm, so long this drift from the country to the city will go forward. The introduction of machinery is quoted by one of the latest books on vocational guidance as one of the causes for this drift. This book says that through the introduction of machinery, an acre of potatoes, which used to require 38 hours of work, now only requires 9; that an acre of oats, which used to require 66 hours of work, now only requires 7 hours of work; that an acre of hay, which used to require 21 hours of work, is now managed by 4 hours of work; and that in the production of wheat, the number of hours needed to work an acre of wheat from sowing to harvest has been reduced from 61 hours to 3 hours. Of course the introduction of machinery makes it possible to run

the farms with fewer hands, and it is not surprising that there should be this drift from the farm to the city, where it is supposed that the factory gives us good wages all the year round. But I come back to the school. I am prepared to admit that the school is partly to blame for this drift from the country to the city. Why? In the first place, the ideals which the school has inculcated have pointed a way from the farm. What I mean I can probably best bring to your attention if I tell you of a new series of readers that has been prepared for rural schools. In this new series of readers the attempt is made to glorify farm life. George Washington is represented not primarily as a general, not primarily as a statesman, but as a farmer; that is what he was by vocation. There is a biography given of Thomas Jefferson who, by vocation, was a farmer, and one of whose greatest achievements was the inventor of a new plow which probably deserved to rank with the Declaration of Independence. There's a chapter on Cincinnatus, who was called from the plow to save Rome from a foreign enemy; and then, after glorifying farm life in that way, this series of readers goes on to tell how some city people who were stranded in an automobile on the old farm began to talk to the boys and girls about the attractions of the city. The boys and girls on that farm were all anxious to sell the farm and move to the city; and then the book goes on to tell how they began to work in the factory, how their cheeks became pale, how one of their number went off into consumption and how, when it was too late, they found the dreadful mistake they had made. That series of readers, from beginning to end, glorifies farm life, points out the nobility of the farmers' vocation, points out the redeeming features of country life as compared with the city. I want to raise in your minds the question whether it is not worth while for us to hunt up series of readers of that sort for introduction into our rural schools? If I were not State Superintendent, I would tell you the name of that series of readers, but under our peculiar law, I cannot have anything to do with the introduction of books, so I simply draw attention to that series of readers in this general way. I am thoroughly convinced that the ideals which we inculcate in the rural schools should be changed, and that the boy in the country should not be made to believe that if he is to rise to distinction and satisfy his ambition, he must necessarily leave the old farm and go to the city to live. Undoubtedly the growth in the yield per acre of wheat and corn, potatoes, etc., is due to farmers' institutes, to the spread of agricultural knowledge from centers like our State College and from our Department of Agriculture at Harrisburg. I tell you these corn clubs have been so successful in raising a crop, that a corn has grown even on one of my feet during the past year, and that's the only argument I have ever struck against the very successful corn clubs which are being encouraged all over this Commonwealth. The truth is that the spread of that sort of intelligence pays, and I am thoroughly convinced that we need the establishment of a new type of high school for our rural districts.

It is easy to waste the taxpayers' money by fruitless experiments. There is one man connected with the School Department whom I have sent all over the United States in order to find out the best and most efficient work in that line, and he is ready to give advice

and to help any community in the establishment of agricultural high schools. I am thoroughly convinced that where agricultural high schools of the proper sort are maintained, they will help to stop this drift from the country towards the city. There is, however, another phase of this question to which I would like to draw attention. Twenty years ago the annual school appropriation was raised to \$5,000,000. Later it was raised to \$5,500,000, on account of free text books; and at that figure it remained until Governor Stuart was inducted into office. He conceived the idea that, as the rural population and the population of the State grows and as the needs of the rural communities grow, this school appropriation should increase; and through his efforts, \$4,000,000 were added to the biennial school appropriation, raising the amount appropriated biennially from \$11,000,000 to \$15,000,000. With the best of effort, we have not been able to get the amount raised beyond that figure. Now, let us not deceive ourselves. Good schools cost money and the money can only come from two sources, from local taxation and from legislative appropriation. The question of local taxation is for the local community to solve, but the question of legislative appropriation is a question to be solved here at Harrisburg with the support of the people who send the members here. At the last session of the Legislature I tried hard to get the \$5.00 a month added to the teachers' salaries provided for in the school code. It would have taken \$1,600,000 to pay the \$5.00 additional all over the State; I couldn't accomplish anything. Then we tried to have \$1,000,000 added. That passed through the House and through the Senate; but the last Legislature was a triangle; two sides of the triangle representing the old parties and the third side of the triangle representing the new party, and as long as the three sides of the triangle stood against one another, there was no legislative progress. Finally, as the session moved along, the members saw that such a condition could not last if they wanted any appropriation for their home institutions. The policy changed. Most of the members got all they wanted, and when the appropriation bills came to the Governor, \$20,000,000 had been appropriated in excess of the revenue. Well, no Governor wants to bankrupt a Commonwealth, and when the Governor told me the amount of revenue that was at his disposal, all I could say was that I did not see where the extra million dollars increasing the appropriation from \$15,000,000 to \$16,000,000, was to come from. But this is the point I am trying to make; if those who are interested in schools keep their arms folded while every other interest in the Commonwealth clamors for money, whatever State revenue there is will go off into other channels and the schools will grow in the number of children to be educated while the legislative appropriation will be at a standstill. Hasn't the time come when the growth in the number of schools, in school population, in new problems which have to be solved, must be met by larger legislative appropriations?

There is one other thing demanding attention. The schools do a very great service to the 50 per cent. of our school population who are above the average, but the question that keeps me awake at night is, What can the school do, say, for the 45 per cent. who are below the average? We are there up against a

very, very serious problem, and unless we can develop our school system in the direction of vocational education, not merely in the direction of better agriculture but in the direction of better training for all the industries of the Commonwealth, our schools will not do what they ought to do for this 45 per cent. who are below the average. In philosophy the cry was "Back to Kant," but very few got back to Kant. A few years ago the cry was "Back to the farm." We now know that it is almost a hopeless task to bring the city people back to the farm. The only sensible thing to do is to take care of those who today are growing up on the farm. Show them the possibilities of the vocation of farming. Show them that men like Washington and Jefferson and Cincinnatus spent their days on the farm and were, by vocation, farmers. Instill into our boys and girls different ideals and make the farm a place quite as attractive as any city can be. If we educate from that point of view, I believe that ultimately the school will help to keep the boys on the farm. When we began the teaching of temperance physiology—fizzleology as my friend used to call it at first—everybody laughed at the blunders we were making. In one of the books we taught the boys how to set up an amateur still and manufacture the alcohol, and there were boys who tried to make alcohol and tried the effects of the stuff. (Laughter). Today we do not commit blunders of that sort in the teaching of physiology; it is no longer fizzleology, and it is bearing good fruit in the life and conduct of the pupils. The sentiment against the saloon, which is making itself felt all over the country, is largely the result of the teaching in our schools for a generation. It is my hope that when we have taught the glories and attractions and advantages of rural life for a generation we will produce the same effect that we have produced in anti-saloon agitation.

**The CHAIRMAN:** This address will be placed on the records. We are now ready to hear the report of the committee that was appointed yesterday.

**MR. KILLAM:** We have written out the following report and I will now read it:

#### REPORT OF SPECIAL COMMITTEE ON ROADS

To the President and Members of the State Board of Agriculture:  
 Your Committee appointed, known as the Road Committee, with instructions to report at the meeting to be held on Thursday afternoon, February 29, respectfully report progress and submit the following for your consideration, limited time prohibiting our making a lengthy report at this time.

We met the officials of the State Highway Department and discussed with them the matter of improving the highways of the Commonwealth as State Highways and State-aid Highways; and also the betterment and improvement of township earth roads. We do find that indiscriminate appropriations made to various charitable, semi-charitable, educational, and other institutions in the State have so depleted the State Treasury that there are no funds available for legitimate improvement of the highways of the State; and that the

system of appropriations has been an incentive to certain people in various sections throughout the State to organize institutions, in the name of charity, education, and for other reasons, concerning which institutions intimations have been made that they are used for private profit and gain; that at every session of the Legislature a new crop of such institutions come forth, until such appropriations have reached the vast amount of over \$20,000,000.

Therefore, Your Committee recommends to the State Board of Agriculture that the time has arrived to call a halt, and considers that the State Board of Agriculture should get in line and work harmoniously with the State Board of Charities and other Boards interested in such appropriations to the end that they be properly made instead of indiscriminately.

We believe that many such appropriations are unconstitutional and void, and should not be made. Your Committee has also learned, in going over the matter as thoroughly as we could during the short time allotted us, that the appropriations made at the last session of the Legislature exceeded the income or revenue by \$27,000,000. The highways of the Commonwealth are not given sufficient consideration and, by reason of the large amounts appropriated as stated, are deprived of funds that should be appropriated to carry on the construction and maintenance of said highways in keeping with the demands of the times and with work being done in sister states.

Your Committee finds, upon inquiry, that in order to further the work of improving the roads and highways of the Commonwealth and to enable the State Highway Department to carry out the provisions of the laws now in force, there should be appropriated a sum sufficient to allow the expenditure of at least six million dollars annually for construction, maintenance and upkeep of the township earth road.

B. F. KILLAM,  
S. S. BLYHOLDER,  
MATTHEW RODGERS,  
P. S. FENSTERMAKER,  
C. H. DE WITT,

Committee.

MR. KILLAM: That is about as far, Mr. President, as we could go into this matter, and while we had in view and have in view certain other lines, it is about as much of a report as we could make at this time, in the limited time we had to make a report.

THE CHAIRMAN: Gentlemen, you have heard the report; what is the will of the convention in this matter?

SECRETARY CRITCHFIELD: Mr. Chairman, I move that the report be adopted and the Committee be continued for their report, if they shall have further report to make, at the May meeting.

Motion seconded.

MR. CREASY: There is another proposition, that, while this report is all right, there is another proposition that is up in Congress and it seems to me that this committee ought to take cognizance of that. It is known as the Shackelford Bill, in Congress, by which

they intend to appropriate \$25,000,000 to the roads of this nation, to be appropriated in three different classes; \$15 a mile for dirt roads, \$30 a mile for gravel roads and \$60 a mile for macadam roads. Pennsylvania, under that bill, would receive over a million dollars. I think \$1,500,000, or something like that; and these roads, these dirt roads, are to be standardized; a certain standard of work is to be put on them to make them in good shape. This bill was before Congress before. It was defeated by some influences in the Senate, but I believe that, so far as I have studied the proposition in our State Grange, that it is a movement that is in the interest of the farmers of this nation. I understand that in the State of Missouri that adopted this plant last year, through their Legislature, and they improved 12,000 miles of road in one year. Now it seems to me that is a proposition that the National Government is back of and that this State Board of Agriculture should get back of, because I think it is a step in the right direction, that it does not require an enormous outlay for official work but it is put down according to our school standard and you put the roads up to this standard and you get the money, if you don't, you will not get the money. I think it is a splendid plan that is workable at a very small expense, and I would suggest that the committee look the matter up and report later at this session.

**MR. KILLAM:** In regard to what Mr. Creasy says, the Committee took up that matter and took it into consideration somewhat, but the Committee did not think the time was ripe to make any report along that line, and we thought that, whatever Committee was doing this work, it would be a continuous work and that our May meeting would be a proper time for the Committee to make a more elaborate report and bring this matter in at that time, and the suggestion from Mr. Creasy is a good one, you know, it is something that the whole Department of Agriculture should keep their eye on that great appropriation that might go through in our National Government.

**MR. CREASY:** The only thing I wish to say in regard to my friend's remarks is this, that Congress is going to act and will act pretty soon, in my opinion, they will act before May and I think a word of approval by this body will have a good effect. I spoke to a number of Congressmen from Pennsylvania and other states, and even to some U. S. Senators, and if they know that the farmers want it, it will pass without doubt, because they are anxious to improve the roads of this country and expect to improve a million miles of road in the course of ten years; therefore I think we should act now.

A Member: A motion to amend the report to that effect would be all right as far as I am concerned.

**SECRETARY CRITCHFIELD:** The Committee was appointed by resolution yesterday, and the provision of the resolution was that the work of the Committee should be to devise some plan for raising money for the improvement of the roads of the State. Now, the object that Mr. Creasy has in view, I think, can be accomplished at this meeting if a resolution be prepared and handed to the Chairman of the Standing Committee. That would be one way by which

we can give expression of our views to the Congress now in session as to what the farmers of Pennsylvania think.

MR. CREASY: I think that is a good suggestion, and we will try and get a resolution ready for this evening's session.

MR. KILLAM: That is outside of the work of the Committee; the whole Department of Agriculture of this State should go on record on that matter in the form of a resolution.

The CHAIRMAN: The motion before the Board is that the report of this Committee shall be received and that it be continued and report further at the May meeting.

The motion was adopted.

SECRETARY CRITCHFIELD: Mr. Chairman, it is only five minutes past four o'clock now and we have gone through with the program for this afternoon. Possibly there may be another committee to report. I think we have all appreciated the help that has come from the various departments of the State Government and we want to show to these departments as much courtesy as we can. I have come to the knowledge of the fact that it will suit the State Fire Marshal very much better to give us his address this evening than tomorrow afternoon, and I think there is ample time to hear him. If there is no objection, Mr. Chairman, I would be glad to have you call for that address now.

MR. KILLAM: There were some matters in relation to the discussion of these papers that have been read and were spoken about this forenoon that seem to have been overlooked. Any discussion by the members of any of the papers that were read or any of the subjects treated—some of them this forenoon spoke about it; perhaps that has been overlooked.

The CHAIRMAN: Shall we take up discussion, or shall we take up the address of the State Fire Marshal at this time? What is the will of the convention?

MR. FENSTERMAKER: There has been no discussion today of any topic. I had a question this morning that I wanted to ask Dr. Conard, that was cut short, and I was given to understand there would be discussion later.

SECRETARY CRITCHFIELD: I understand that this address will take only fifteen minutes and it is one of great importance. Possible the Fire Marshal may not be able to give this address unless it is given now.

The CHAIRMAN: Then I will call on the Hon. Jos. H. Baldwin, State Fire Marshal.

Mr. Chas. O. Wolfe read the paper, which is as follows:

## FIRE PREVENTION

By HON. JOS. H. BALDWIN, *State Fire Marshal.*  
(Read by Mr. Chas. D. Wolfe)

MR. WOLFE: I thank you for this courtesy. I am here representing the Fire Marshal, in his absence, and I feel that this subject is as great and important as any that has been or will be discussed before your meeting.

When a physician is called to treat a patient for an ailment, he first studies the cause of the ailment and then attacks the cause. The fire waste in this country is an ailment of colossal proportions, which cannot be cured until the causes are studied and when found, vigorously attacked. Causes of fire waste are many and varied, but by the concerted action of public spirited citizens interested in the welfare of their communities, and public officials charged with the enforcement of the law, for the reduction of fire waste and saving of life and property, the causes can be ascertained and the remedy applied that will correct this expensive and damaging ailment.

The public press forms the greatest educational force in the country, and every effort should be made to enlist its assistance in disseminating information in the crusade for fire prevention. The press is already alive to the situation and beginning to note the tremendous increase in fire waste; and it should be the duty of every one interested in decreasing this fire waste to take the press into consideration and through its columns get in touch with its readers for the purpose of arousing civic pride and instilling in their hatred for all dirt, littered back yards, trash-filler vacant lots, delapidated buildings, which are a fire menace, and all other possible fire hazards. They can aid in educating children in the causes of fires and their prevention and in many ways assist in this great and worthy cause.

The fire waste is a costly proposition in more ways than one in addition to the loss of property and its attendant cost. The continuous wastefulness is adding year by year to the cost of insurance, as all insurers know too well; and there will be no reduction in this cost, but a greater increase unless the fire waste is materially lowered by active work along the lines of fire prevention. All citizens are vitally interested and should lend their aid in this work and do so most willingly as they and their families are the ones benefited, for the reason that should a fire occur on their property they not only lose that property, but may also lose some loved one whose loss will ever remind them of their carelessness and failure to keep their premises free from all fire making material.

Again, should there be no loss of life and their property be fully insured, they should know that the money to pay the loss does not come from the insurance companies, but out of the pockets of their neighbors and fellow insurers who pay the premium for insurance and they must stand their share when a neighbor sustains a loss. So that the reduction in fire hazards by means of fire prevention means a reduction in the cost of insurance and further benefit to all insurers.

Firemen can be utilized to a great advantage in fire prevention and should be taught that fire prevention is quite as essential as fire fighting, and if proper instructions be given and carried out it will save their annual salaries many times over by securing the removal of hazards which might cause disastrous fires.

The fight for fire prevention is on and is nation wide. The public is becoming aroused to this useless loss caused by thoughtlessness and expensive carelessness. All that is necessary to carry on the fight successfully is a concerted action on the part of property holders, who are the ones most interested and who will profit both financially and in peace of mind for their efforts.

It is shown that the fire loss in this country amounts to about \$3.00 per capita compared with the loss of about 33c per capita in Europe. This has brought most forcibly to the minds of the thinking public the fact that something is wrong and upon investigation it has been clearly shown that the fire waste throughout the country is not only unnatural, but absolutely unnecessary and has resulted in establishing in nearly every State the office of a State Fire Marshall with power to investigate the causes of fires and the remedying of conditions for the prevention of fires, this including the removal of delapidated structures and destruction of all rubbish or material that would in any way cause fire. With the power given the State Fire Marshal and the proper support of the public a great reduction in the fire waste will be effected and a long step forward taken for fire prevention.

Owing to many inadequacies in the law establishing the office of State Fire Marshal, it is at times difficult to cope with situations presented and opposition is met in endeavors to benefit the public. This should not be as the Department has no selfish purpose to serve in its actions and is endeavoring to work for the benefit of the people of the entire State and desires and welcomes every assistance. Notwithstanding the objectionable features of the law and the lack of powers it grants, the Department has been able to do much work looking towards fire prevention and the elimination of the fire bug; but much remains to be done which requires constant and hard work.

In the interest of fire prevention, this Department with but seven field men to cover 65 counties, or 44,328 square miles, has vigorously pushed the work of reducing fire waste by means of circulars, personal appeals of deputies and assistants and special efforts have been exerted towards the elimination of the incendiary. From September 21st, 1912, when the active operation of the Department began, there have been received reports of seventy-seven hundred and seven (7,707) fires (not including Philadelphia and Pittsburgh). There have been sixty-nine hundred and thirty-seven (6,937) inspections in forty-six (46) counties on complaint made of structures being in a delapidated and dangerous condition, accumulation of trash or the careless handling of combustibles or explosive material. In all cases orders were issued for the removal or remedying of conditions and these orders were followed closely to compel compliance therewith. There were also three hundred and forty-seven (347) special investigations into supposed incendiary fires in fifty-two (52) counties which resulted in forty-nine (49) convictions, including

nine (9) confessions, three (3) suspects committed suicide, eight (8) suspects left the jurisdiction of the State and one (1) suspect dies in jail while awaiting trial. There were thirteen (13) acquittals. Fifteen (15) cases are in the hands of district attorneys for trial, sixty-eight (68) cases are still under investigation, and there were two hundred and two (202) cases in which there was either no evidence of incendiarism or lack of sufficient evidence to warrant prosecution.

In every state where active work has been done in fire prevention there has been a material reduction in the fire loss, and where fire prevention has been combined with improved building laws reports show that the efforts put forth have been amply repaid.

A study of the subject shows conclusively that over fifty per cent. of the fires that occur are caused by carelessness on the part of persons lacking proper teaching. This carelessness can and should be overcome by educational measures rather than by laws that are often hurriedly enacted without having been given due consideration and in many cases are totally inadequate to cope with the situation. Education should commence with the children in the schools, of which there are twenty millions in the United States and should embrace fire drills and the study of the chemistry of fires. Lessons should be simple and cover such subjects as the proper and improper use of matches, kerosene oil and oil stoves, gasoline and gasoline stoves, oil lamps, wicks and chimneys, stoves and stove pipes, heaters, fire places and grates, the proper making and keeping of fires, construction and care of chimneys, the effect of sparks on shingle roofs, prevention and remedy; care of hot ashes, cause and effect of leaking gas, its danger and prevention, the possibility of grease, oil and oily rags causing spontaneous combustion; also studies in electricity and electric wires, showing the dangers of defective wiring, and special lessons covering a sane and safe Fourth of July and danger at Christmas time by the use of flimsy decorations and lastly, lessons in fire fighting.

The field for this preliminary work is ready and should be used and it means the attaining of active allies in the near future in fire prevention. Educate the children and in most communities the parents who have probably given no thought to the subject will fall in line and an army enlisted to fight, for clean, wasteless, trashless communities will have been established and be more efficient than all the laws that can be enacted to that end. An educational campaign requires constant thought and active work and should be far reaching in effect. It must be undertaken with a determination to carry it successively into every home within the Commonwealth and endeavor to enlist every individual as an advocate for absolute prevention, a means of education which will be received with absorbing interest.

The advancement in means of educating the public in subjects in which they are interested has brought into use for that purpose moving picture exhibitions which, together with lectures, can be utilized to advantage in the fight for fire prevention. This topic is quite as important to a community as its health, as it means above all cleanliness, carefulness, the preservation of property and saving of life. The exact conditions that exist in a community can be shown as com-

pared with location where the work for fire prevention has progressed. In the exhibition of pictures showing conflagrations care should be exercised that no subject be displayed that will appeal to the weak or evil minded and no exhibitions should ever be permitted showing the incendiary about to set off any device to cause fire in a building, nor should any display be made of any of the various devices known or used by the fire bug to carry on his nefarious work. Such pictures appeal to children and the unscrupulous, and attempts might be made to carry out in reality the ideas depicted by the pictures.

Chambers of Commerce, Boards of Trade, Village Improvement Associations and other associations should be invited to participate and aid in this great work which means so much.

**THE CHAIRMAN:** This report will also be filed.

**MR. YOUNG:** The Executive Committee is ready to report.

**THE CHAIRMAN:** Well, you see there is a time schedule for that; this evening is the time, but I suppose there would be no objection to receiving the report now, would there, Mr. Secretary?

**SECRETARY CRITCHFIELD:** I can conceive a reason why it should be received now; they name the Standing Committees, and one of those committees is the Committee on Resolutions and there are several resolutions now waiting to be handed to the Committee on Resolutions.

**THE CHAIRMAN:** We will hear the report now.

**MR. YOUNG:** I will proceed to read the report. It consists mainly of naming committees, and is as follows:

#### COMMITTEES AND SPECIALISTS OF THE STATE BOARD OF AGRICULTURE

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##### ADVISORY COMMITTEE

|                              |               |
|------------------------------|---------------|
| Dr. W. Frank Beck, .....     | Altoona.      |
| Mrs. Jean Kane Foulke, ..... | West Chester. |
| J. Newton Glover, .....      | Vicksburg.    |

##### COMMITTEE ON RESOLUTIONS

|                         |               |
|-------------------------|---------------|
| John Schoener, .....    | New Ringgold. |
| G. A. Benson, .....     | Tunkhannock.  |
| Joel A. Herr, .....     | Millhall.     |
| F. S. Brong, .....      | Savlorsburg.  |
| B. Frank Wambold, ..... | Sellersville. |

##### COMMITTEE ON LEGISLATION

|                            |                 |
|----------------------------|-----------------|
| S. S. Blyholder, .....     | Kelly Station.  |
| M. M. Naginey, .....       | Milroy.         |
| Hon. H. C. Snavely, .....  | Cleona.         |
| Hon. H. G. McGowan, .....  | Geiger's Mills. |
| Hon. Robert W. Lohr, ..... | Boswell.        |

## CONSULTING SPECIALISTS

|                                   |                            |                     |
|-----------------------------------|----------------------------|---------------------|
| Botanist, .....                   | Prof. F. D. Kern, .....    | State College.      |
| Pomologist, .....                 | Chester J. Tyson, .....    | Floradale.          |
| Chemist, .....                    | Dr. William Frear, .....   | State College.      |
| Vet. Surgeon, .....               | Dr. C. J. Marshall, .....  | Harrisburg.         |
| Sanitarian, .....                 | Hon. S. G. Dixon, .....    | Harrisburg.         |
| Microscopist and Hygienist, ..... | Prof. J. W. Kellogg, ..... | Harrisburg.         |
| Entomologist, .....               | J. A. Herr, .....          | Lancaster.          |
| Ornithologist, .....              | Dr. Joseph Kalbfus, .....  | Harrisburg.         |
| Meteorologist, .....              | Prof. W. G. Owens, .....   | Lewisburg.          |
| Mineralogist, .....               | Dr. Isaac A. Harvey, ..... | Lock Haven.         |
| Apiarist, .....                   | H. C. Klinger, .....       | Liverpool.          |
| Economic Geologist, .....         | Baird Halberstadt, .....   | Pottsville.         |
| Agricultural Geologist, .....     | W. H. Stout, .....         | Pinegrove.          |
| Forests and Forestry, .....       | Miss Mira L. Dock, .....   | Fayetteville, R. D. |
| Feeding Stuffs, .....             | G. G. Hutchison, .....     | Warrior's Mark.     |

The Committee would recommend that a Specialist, to be known as the Specialist on "Soils and Crops," be made and that Prof. Franklin Menges, York, Pa., be made the Specialist for this year.

## STANDING COMMITTEES

## CEREALS AND CEREAL CROPS

J. Newton Glover, ..... Vicksburg.

## ROADS AND ROAD LAWS

P. S. Fenstermaker, ..... Allentown.

## FRUIT AND FRUIT CULTURE

W. F. Biddle, ..... Everett.

## DAIRY AND DAIRY PRODUCTS

Dr. M. E. Conard, ..... Westgrove.

## FERTILIZERS

John Shoener, ..... New Ringgold.

## WOOL AND TEXTILE FIBERS

James M. Paxton, ..... Houston.

## LIVESTOCK

W. C. Black, ..... Mercer.

## POULTRY

W. Theo. Wittman, ..... Allentown.

Executive Committee, { A. P. Young.  
Jean Kane Foulke.  
S. S. Blyholder.  
H. G. McGowan.  
John Schoener.  
W. F. Holtzer.  
J. Newton Glover.  
G. F. Barnes.  
M. M. Naginey.

MR. ESCHBACH: I move that we accept the report of this committee as a whole.

The motion was seconded by Mr. Cowan and adopted.

MR. McGOWAN: I just noticed that my name has been mentioned as on the Committee on Legislation. I was just thinking that I believe it is possible to accomplish more along legislative lines than we have in the past year. My attention just called to this fact by a gentleman who came to me a few hours ago, who said that when our committee met he would like to know it, as he had some matters that he wanted us to consider. Now it has been said that this committee is not to create legislation, but to consider such matters as are brought before it. We all recognize the very great importance of the Committee on Legislation, and I trust that we will have the most hearty and thoughtful co-operation by every member of this Board so, that in the coming year, we may be able to accomplish more along legislative lines for the benefit of the farmers of our great State.

THE CHAIRMAN: Is there anything further before the convention this evening? Mr. Fenstermaker, we will allow you time to put that question.

MR. FENSTERMAKER: I would like to ask Dr. Conard—he referred to the Pennsylvania Railroad reaching out in all directions to get milk and Brooklyn dealers being anxious to have it. What are they paying for milk?

DR. CONARD: A little more than the Philadelphia dealers can pay. I don't know what they are paying just now; the New York market pays 9c a quart for the regulation retail milk; Philadelphia pays 8c; it puts the New York people into the market as very wicked competitors.

MR. FENSTERMAKER: I mean what do the farmers get for their milk?

DR. CONARD: That's the point I don't know; I don't know what they are paying the farmer.

MR. GLOVER: The Diamond Dairy Company, of Erie, has a plant at Vicksburg, and they pay \$1.90; the average for 1913 was \$1.64 and a fraction, delivered at the creamery.

MR. HUTCHISON: At Altoona, the Erie people are paying \$2.00 a hundred pounds, coming around and soliciting it and it is no trouble to make contracts at \$2.00 a hundred for the winter months. I cannot tell what they will pay in the summer.

MR. FENSTERMAKER: How much a quart will that be? What is the size of the cans?

DR. CONARD: One hundred pound cans; 46 quarts in a can.

MR. FENSTERMAKER: That's 4c a quart then.

DR. CONARD: It runs nearer three.

MR. FENSTERMAKER: Is that a profitable business, to produce milk for 3c a quart?

DR. CONARD: That depends on your cows. It is not a profitable business if a cow does not give more than 4,000 pounds of milk a year, or a little over 2,000 quarts; that would be \$60, at 3c a quart. It will cost you \$60 to \$75 a year to feed a cow, so there is nothing in it at that, if she gives 4,000 pounds; but if she gives 6,000 pounds, as a great many do, and a great many cows give more, you see that puts it in another class, that puts it at \$90, at 3c a quart, and then you have a little margin.

MR. FENSTERMAKER: Exactly. At the Experiment Station, I have not seen any lower figure than 5c a quart as the cost of production, and some go as high as six, figuring everything in, including labor. Now can the farmer afford to produce milk at 3c a quart when, with an average herd like that at the Experiment Station, it costs them 6c a quart to produce it?

SECRETARY CRITCHFIELD: The milk produced on my farm is selling at 8c a quart, and the farmer is purchasing milk from his neighbor at 6c a quart that he puts in with his milk.

DR. CONARD: I will tell you of an extreme case that illustrates the difference between a good cow and a poor one. The cow had recently finished a manual test of 23,000 pounds of milk in a year, or something over 11,000 quarts. The milk, at 5c a quart—it was retailed at more than that, but it could be retailed at 5c most anywhere, or much of it could be wholesaled at that, brought in—I can't give you the exact figures, but I can give you the difference—it brought in enough money so that when her feed, which cost \$184 in the year, was deducted, it left \$364 for milk over and above the cost of feeding, almost a dollar a day. Now I say it is an extreme case, but it shows the difference between a good cow and a bad one. That cow will make almost a dollar a day and yet it cost \$184 to feed her. If we have our cows bred up and selected, bred and cared for properly so that they will give us a large flow of milk, 6,000 or 7,000 pounds in a year, we can make a profitable business of it; but the average cow that gives 140 pounds of butter fat and about 4,000 pounds of milk in a year, is not a paying proposition.

MR. FENSTERMAKER: The reason I asked the question was that somebody remarked that anybody who tries to make a dairy pay will become crazy.

A Member: What would such a cow be valued at?

DR. CONARD: I don't know; this was very high bred, imported cow. I know another cow that made a record in five consecutive years of 62,000 pounds of milk, a little over 12,000 pounds of milk a year. They refused \$2,500 for that cow.

A Member: Was the cost of the animal considered when you computed the profit?

DR. CONARD: No, nothing at all but the milk and the feed. I just brought it up to show what it was possible for a cow to do.

MR. STOUT: I inquired what was the price received for this cattle and was told \$7,000 for a cow and \$16,000 for a bull.

MR. WELD: Mr. Chairman and Gentlemen: I am interested in cows, too, and I believe that the right kind of cow, such as Dr. Conard has been speaking about, can be made to pay in Pennsylvania; in fact, I know they can and I know that the average man who keeps cows does not appreciate what it costs per year to keep a cow and he falls down on the dairy business from that very fact, that he does not take into consideration that he is paying out \$55 to \$70 a year for food alone for that cow, and if he hasn't got a cow that will return him more than that many dollars worth of material, he is playing a losing game. If he has bred and selected his cows with a view to making them efficient users of feed, he can get back anywhere from \$1.50 to \$2.00 for every dollar he puts into the cow for food alone, and that is pretty good. My own dairy this last year paid me \$1.68 for every dollar, pasture included, that I put into the manger of those cows, in the past twelve months; every bit of feed measured as accurately as we could measure it and computed at its market value, and it cost me \$70 a piece to feed them, and yet, with that cost, they returned me \$1.68 profit for the part of their product which I sold alone, namely the butter fat, and above that product I had the skimmed milk and the offspring of the cow and the manure to offset the investment and labor, but taking the actual cost of the food and crediting it with the part of the product I sold to my customers, those cows paid me \$1.68 for every dollar of cost I put into them.

MR. BLYHOLDER: I would like to ask the brother how much he got for his milk?

MR. WELD: I made the milk into butter and sold the butter at the highest New York quotations for specials.

SECRETARY CRITCHFIELD: I have just one little cow story I want to tell. One of my neighbors, formerly in the hardware business, left the business. He stayed in the same town; he retired, however, from the hardware business and kept one good cow and he told me that the year preceding—this was the year 1912—his cow had paid him, I think it was, \$104; it was over \$100., I think it was \$104. He sold the milk, he didn't make any butter he bought butter for family use, he sold his milk using only enough for table purposes in his own family and made \$104.; if it was \$104. It was over \$100 and I think it was \$104, over and above all that it cost him to feed that cow. He bought everything, his pasture, his hay, everything that he fed her, and he is a man that will be willing to testify to that at any time.

MR. FENSTERMAKER: This reminds me of a poultry story I read not long ago. Some lady was very successful in raising young chickens and bragged about it to her neighbors and they asked her, "Did you figure the labor?" "No," she replied, "if you figure the labor, it won't pay." He's a good dairyman—doesn't figure his own labor; that is one of the items that we farmers all forget, we take it for granted that we are working for nothing. No other business

under the sun would attain success under those conditions; you must figure the labor, no matter who does it.

MR. HUTCHISON: I want to bring you a case where a man did nothing but farm on fifty acres since the war. Farmers' Institutes came into our community some years ago, under Secretary Edge. This man got a fashion of keeping eight or ten cows. This man has done nothing but farm; he has as nice a property as there is in our valley. He has a nice house, nicely painted; he has a nice barn painted red; he has educated his children fairly well; he has clothed them well; he has raised five children; he has contributed to the good and welfare of the community; he is a member of the church, he contributed and he did it well; he drives to church, while he is farming, with a nice team, and he has lived as a man. His son grew up with him and the father retired and the son took the farm of fifty acres and followed the same process, never speculated a day in his life; had about ten cows, made butter that he sold in Tyrone market for thirty-five cents. He had a piece of land that is a garden, very productive. He bought thirty some acres to add to that farm; he has fixed that up; it's a place which, if you drive along the road, you will stop and look at, and he never engaged in anything but the eight or ten cows, making good butter and selling it at a good fair price.

Now, he didn't get that money from out of the clouds, he didn't dig it up out of the earth, he made it legitimately farming in that line. That is only one case of thousands that could be mentioned all over this Commonwealth; where a man will put brains and labor and patience into his work and seek a market, he will increase his wealth by keeping cows.

DR. CONARD: I could cite you several cases similar to that. I think of two men in my own neighborhood who keep, one of them about thirty cows, maybe forty part of the time; the other one, less. They had a market for cream. They would sell perhaps twenty-two per cent. cream for eighteen cents a quart. They had the skim milk left at home. Those men, for that cream alone, realized, one of them \$110. and some cents per cow; the other one \$115., I think, and some cents, per cow, per year. That doesn't count anything for skim milk; it doesn't count anything at all for the calves, and the work is comparatively little, the freight is light, because there is only the cream to ship. They run it into the market quite easy, it is really about the easiest way of dairying that I know of. That was about four or five years ago when feed had not reached the price it has to-day. I am sure that, compared to present prices, those cows did not cost over \$60. a head to feed them, probably less than that, at that time, leaving a good margin of \$50 profit on every cow, taking them as a herd. Of course one cow, if she happens to be a very good one and does not have any drone to live off of her, will naturally be better, but where you take the herd through, good and bad, and these were well selected cows, each one tested individually, that margin was pretty good, and those two men both sold their farms—came to an age when they did not want to follow the work any longer—and both made their farms out of that kind of business and

are living in Westgrove, one of them, and the other in Applegrove, and can go where they please, at least one of them can, the other can't because he is a cripple.

The CHAIRMAN: I suppose we had better adjourn this discussion as the hour is getting late, and it has been suggested to me that I had better read the names of the Committee on Resolutions and then any one who has any resolutions to offer can hand them to some member of the Committee or have them presented in the session to-morrow.

(After the names of the members of the Committee on Resolutions had been read, the meeting adjourned.)

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January 30, 1914, 7:30 P. M.

Vice President Wilson in the Chair.

The CHAIRMAN: The meeting will come to order.

MR. KILLAM: I have a resolution that the Road Committee wish to present to the State Board of Agriculture at this time;

*Whereas*, Pennsylvania, at the last election clearly demonstrated that she believes in a system of business roads leading from the farm to the market town, railroad station, school and church on the "pay-as-you-go" plan, and

*Whereas*, A bill now in Congress known as the Shackelford Road Measure, provides aid for the various states for the improvement of roads by granting \$60. per mile for macadam, \$30. per mile for gravel and \$15. per mile for earth roads, yielding annually over \$1,000,000 as Pennsylvania's share, therefore,

*Resolved*, That we urge that each individual Congressman and Senator representing the Keystone State, support by their vote, the passage of the Shackelford Road Bill.

*Resolved*, further, That we endorse the action of Congressman Dersham and others in the loyal support they are giving the measure in their Committee on Public Roads.

This resolution by the Road Committee has been drawn up and presented to this meeting for such action as you may deem proper.

On motion of Mr. Hutchison, the foregoing resolution was adopted.

MR. HUTCHISON: I move that the Secretary be requested to send a copy of this Resolution to each member of Congress from Pennsylvania and also to our Senators.

The motion was seconded and adopted.

The CHAIRMAN: First on the program this evening, is the report of Mr. George G. Hutchison, Specialist on Feeding Stuffs.

MR. HUTCHISON: My friends I am pleased to be before you tonight. I am glad to see so many familiar faces here, so many persons who are interested in the work of the farm and the home and of the State. It has been a great treat to us, while we have been here listening to these different addresses. Why they should put me on this subject this evening, I don't know; you'll have to blame the Committee. I hope I may interest you a little in this great subject that is before the people of Pennsylvania to-day. We are considering economic questions, questions of feeding our people, questions of producing cheaper foods, and the one that I have the honor to speak for a little while on, is one that lies very close to the production of foods, such as milk, butter, beef and all manner of foods that are grown upon the farm. The day was when the farmer was able to produce his own feed. The question was asked this evening by our janitor. When we worked for Mr. Young, a former member of this Board, he stated that Mr. Young grew all the feed on these rich farms down here to feed his domestic animals. Agriculture has greatly changed since Mr. Young conducted those farms.

Mr. Hutchison then presented the following report:

#### REPORT OF SPECIALIST ON FEEDING STUFFS

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By GEO. G. HUTCHISON, *Warrior's Mark, Pa.*

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Another year has come and gone and we are before you once more to give an account of our stewardship. To some it must seem strange that there appears upon your program a report of a specialist on feeding stuffs. This title we believe would be more fitting to some College Professor; but after years of research and study on this matter, we come before you to-day hoping to bring something that may create a greater interest among you as representatives of the farmers of Pennsylvania. The question is so large and the different elements that enter into it, so great that it seems almost an impossibility to take up this subject and properly talk upon it in the short time that is allotted to me on this program; but I will try and call your attention to some of the most important phases of this great question.

The question of feeding the domestic animals is one of great importance. The day was when you farmers took your corn, oats, rye and barley to the mill in your neighborhod and had it ground into meal to feed your animals. A great many of you fed it whole. In your younger days, bran and middlings were discarded and no feeding value was attached thereto. It has only been in the latter days that science has told us the feding value or the composition of these different articles. To-day articles of feed are bought and sold on their feeding value. Little did the miller know what bran had in it, sixteen per cent. of protein and five per cent. of fat, and that it was a very valuable feed. The same is true of all the by-products that are on the market to-day. Some of these by-products run high in feeding value while lower grade by-products are mixed with the

higher and are placed on the markets. The object of having legislation on this subject is to regulate the sale of these by-products feeds. The day was when we had to condemn them and point out the fraud and deception that was being practiced upon our people in the sale of these by-product feeds, but by diligent work, our law is being observed, and there never was a day that the farmer could purchase feeds with as much security and as full money value as he can today in Pennsylvania.

One of the great checks and good features of our law that I wish to call your attention to, is, that the Secretary of Agriculture, through his representatives, can call upon the firms who manufacture in his own state and ship in from outside the state, to register their feeds, giving the name of the feed or brand name, under which they intend to sell it, the analysis for protein, fat and fibre and the composition. During the last year there was filed in the laboratory office of the Department of Agriculture, the analysis and compositions of 2,000 different kinds of feeds that come upon the markets of Pennsylvania. These statements are certified to by a member of the firm, or an officer of the firm, or individual, that are manufacturing the feed. This is one of the best checks that we have on what is coming on our markets. These blanks are sent out to all firms, and on the back of the blank is a portion of the law and this explains to the mixer or compounder of these feeds, what kind of feeds can be sold in Pennsylvania without violating the law.

This has another beneficial effect. If we find on the markets any feeds that do not come up to the certification, and prosecution is ordered, we can take their certificate as a matter of evidence into court and show by that certificate what they promised to do, and by our analysis, what they failed to do.

The Feeding Stuffs law of Pennsylvania is being quoted and copied after in nearly all the states of the Union. There are a few states that have a clause in their law which compels the manufacturer of feeds to pay a license on each ton of feed sold. Our State holds that this is not the proper way to raise the money for the enforcement of this law, as that tonnage tax gives the manufacturer, or sales agent of the feed, a chance to add on, not only the amount of the license fee to each ton, but gives him a chance to add on a larger per cent. claiming that they have to pay a tax to sell the feeds in the Commonwealth. But the Legislature, in its wisdom, has given us a fair appropriation for the enforcement of the law and we believe that this is a better way as it divided the burden on all the tax payers. One of the most difficult matters that we have had to regulate in the last year, is the control of the cotton seed meals that come upon our markets. The majority of the cotton seed meals are guaranteed forty-one per cent. of crude protein, but we find quite a variation, running down to thirty-eight per cent. protein, or a variation of three per cent., some running as low as thirty-five per cent.

It was our privilege to attend the National Feed Control Convention at Washington last November, and one of the items that was on the program was the manufacture and sale of cotton seed meals. This subject was discussed by the manufacturers from the Southern states where the cotton seed is grown and the meal secured. You understand that the cotton seed is pressed to remove the cotton oil

and that the cotton seed meal is the residue or by-product of the cotton seed berry, and should contain, as referred to above, nearly 41% of protein and 8% of fat, and not over 9% of crude fibre. In Texas there is a cotton seed meal that will run over 50% protein. This matter was thoroughly discussed by Dr. C. G. Fraps, State Chemist, College Station of Texas, and he gave the analysis of 266 samples of cotton seed meals which run on an average of 47-65% of protein and 6.50% of fibre. He claims that the mixers of cotton seed meal could take the cotton seed meal of Texas and add 14% of hulls and the same would run 41%, the same as the meal sold from the Southern states. His contention is that pure meal should contain a very small percentage of cotton seed hulls and that the reason that the north gets such a low grade of cotton seed meal is, that there is either cotton seed hulls added to the meal or a percentage is allowed to remain in the meal. I would say to those who are interested in the purchase of cotton seed meal, to buy it on its protein analysis, which should not be less than 41%. Its analysis for fat should not be less than 6% and its analysis for fibre should not exceed 9%. This is as good a guide as I can give you or that any chemist or chemists who have made a study of the subject.

Another great fraud in the sale of cotton seed meal, is the poor sacks or bags in which it is put up, and the great variation in the number of pounds in said sacks. I called the attention of the shippers from the South to this subject, and a number of them agreed that they were going to use good, strong sacks and guarantee 100 pounds in the same. If the purchasers of cotton seed meal would give some attention to this matter, they might be saved quite a large sum of money in the purchase of their meals. I have known as high as two tons of waste and shortage to be in a car lot of meal coming into Pennsylvania.

Another question that is before the National Department of Agriculture, at Washington, and also before the State Departments of Agriculture throughout the United States, is in regard to wheat bran. The understanding of the purchaser of wheat bran is that he is receiving the outer coating or covering of the wheat berry. This is true of the bran manufactured from pure wheat. You know in the cleaning of wheat, especially in large mills, where they manufacture the high grade flour, they scour the wheat and remove all foreign materials, such as wheat seeds, sand, small and imperfect grains of wheat and other impurities that might be mixed with the wheat. This was sold to feed compounders or mixers and the millers received a very small sum for the same.

The millers have conceived the idea that they should make some money out of this as well as the men to whom they were selling it to, hence they are grinding and running this in their wheat bran and calling it "Hill Run." This is a very misleading statement to those who do not understand it, and at the present time my contention is, that manufacturers of pure wheat bran are making a mistake and I have so stated to their National Secretary: Kansas has been following this rule for several years, but the wheat from Kansas contains very little foreign matter. The wheat of the Dakotas and the Northwest contain a very much larger percentage of foreign substances. I would be very sorry if our wheat bran that comes upon

our markets should be depreciated. The sacks on which I have noticed their analysis were a guarantee of 14% of protein. This would indicate a fair wheat bran. The molasses feeds that have been coming into our State have shown a great improvement. They are finely ground, their guarantees of protein, fat and fibre are maintained, some few of them running a few percent higher in fibre than we would like to see, but there has been a great demand for these feeds and the public are buying largely of the same. Competition is regulating the price and keeping it, we believe, near its real feeding value.

We have no startling things to bring to you, as we did have some years ago, through the vigilance and work of our Bureau and the close touch that we keep with the manufacturers, our prosecutions have not been so numerous. Yet we find, now and then, some one who is anxious to make money, who has not had experience, who will place upon the markets a low grade feed, or one improperly labeled. As our report will show, we have taken over 1300 samples of feeds in the last year in 53 of the 67 counties of the Commonwealth. Our agents have visited a large number of towns and conversed with feed dealers, gave them instruction in regard to the law and other matters of importance. We have a report giving the number of samples taken in each county, the towns visited and giving a detail of the work, which I will not read, but which will appear in the Annual Report. During the year 1913, samples were taken in 53 counties of the State. The total number of towns visited in 1913, were 384. Samples of feed were not taken in all of the towns visited, as many duplicate samples of the same brands of feed found had already been taken in other towns. The total number of samples of feed taken in 1913 were 1360, distributed in the following named counties: Montgomery, 65; Crawford, 20; Forest, 9; Lawrence, 10; Mifflin, 13; Juniata, 4; Bucks, 9; Butler, 32; Beaver, 19; Lebanon, 36; Dauphin, 34; York, 37; Cameron, 8; Potter, 8; Perry, 4; Centre, 22; Armstrong, 22; Fayette, 23; Union, 23; Cumberland, 29; Franklin, 19; Lycoming, 25; Northumberland, 30; Montour, 12; Columbia, 12; Snyder, 12; Erie, 34; Tioga, 42; Sullivan, 2; Luzerne, 57; Bedford, 17; Cambria, 38; Somerset, 28; Mercer, 30; Huntingdon, 7; Allegheny, 27; McKean, 28; Blair, 29; Berks, 13; Elk, 23; Jefferson, 23; Clearfield, 24; Westmoreland, 67; Lehigh, 13; Bradford, 32; Venango, 19; Indiana, 19; Clinton, 14; Washington, 38; Delaware, 10; Philadelphia, 8; Lancaster, 61; Chester, 62.

In the following counties, towns were visited during the year:

#### *Lancaster County:*

Lancaster, Manheim, Mechanicsville, Lititz, Elizabethtown, Mt. Joy, New Holland, Bareville, Quarryville, Eldora, Fulton House, New Providence, Kinzer, Christiana, Columbia, Florin and Rheems.

#### *Chester County:*

Glen Moore, Coatesville, Parkesburg, Downingtown, West Chester, Kennett Square, Malvern, Atglen, Avondale, Phoenixville, and Pocopson.

#### *Delaware County:*

Chester, Darby, Glenolden and Media.

*Philadelphia County:*

Philadelphia.

*Clinton County:*

Lock Haven, Mill Hall, Flemington and Renovo.

*Washington County:*

Charleroi, Donora, West Brownsville, Washington, Speers, Monongahela, McDonald, East Washington, Houston and Canonsburg.

*Venango County:*

Oil City, Emlenton, Franklin, Rouseville, Utica and Siverly.

*Indiana County:*

Blairsville, Saltsburg, Indiana, Homer City, Creekside, Blacklick and Clymer.

*Westmoreland County:*

Latrobe, Greensburg, Mt. Pleasant, Avonmore, Bolivar, Irwin, Derry, Jeannette, Manor, Monessen, New Florence, New Kensington, North Belle Vernon, New Salem, Scottdale, Parnassus, Trafford, Vandergrift, Vandergrift Heights and Youngwood.

*Lehigh County:*

Bethlehem, South Bethlehem, Allentown, Slatington, Macungie, Emmaus and Catasauqua.

*Bradford County:*

Canton, Alba, Athens, Wyalusing, Towanda, South Waverly, Sayre, New Albany, Monroe, and Troy.

*Elk County:*

Ridgway, St. Marys and Johnsonburg.

*Jefferson County:*

Brockwayville, Big Run, Brookville, Falls Creek, Punxsutawney, Reynoldsville, Sykesville and Summerville.

*Clearfield County:*

Du Bois, Wallaceton, Ramey, Osceola, Mahaffey, Routsdale, Curwensville, Brisbin, Morisdale, Munson and Clearfield.

*McKean County:*

Bradford, Smethport, Eldred, Port Allegany, Mount Jewett and Kane.

*Blair County:*

Tyrone, Juniata, Martinsburg, Altoona, Roaring Spring, Hollidaysburg, Gaysport, Bellwood and Curryville.

*Berks County:*

Birdsboro, Gibraltar, Reading, Kutztown, Womelsdorf, Topton, Mount Penn, Hamburg and Fleetwood.

*Huntingdon County:*

Huntingdon, Petersburg, Mt. Union, Mapleton and Orbisonia.

*Mercer County:*

Sharon, Farrell, Greenville, Grove City, Jamestown, Mercer, West Middlesex, Wheatland and Sharpsville.

*Allegheny County:*

Braddock, Aspinwall, Brackenridge, Hays, Glassport, Elizabeth, Pittsburgh, East Pittsburgh, McKeesport, Duquesne, Carnegie, Bridgeville, Pitcairn, Homestead, Rankin, Sharpsburg, Tarentum, Turtle Creek, Verona, Walls, Wilkinsburg and Wilmerding.

*Bedford County:*

New Enterprise, Saxton, Everett, Bedford, Hopewell, and Hyndman.

*Cambria County:*

Conemaugh, Johnstown, South Fork, Barnesboro, Carrolltown, Cresson, Ebensburg, Gallitzin, Lilly, Portage, Hastings, and Patton.

*Somerset County:*

Windber, Berlin, Garrett, Hooversville, Rockwood, Salisbury, Somerset and Stoystown.

*Tioga County:*

Wellsboro, Westfield, Tioga, Osceola, Nelson, Mansfield, Lawrenceville, Knoxville, Cowanesque and Elkland.

*Luzerne County:*

Wilkes-Barre, Avoca, Dorrance, Hazleton, Kingston, Luzerne, Miner's Mills, Nanticoke, Pittston, Plymouth, West Hazleton, West Pittston and Wyoming.

*Columbia County:*

Catawissa, Berwick, Centralia, Bloomsburg, and West Berwick.

*Snyder County:*

Selinsgrove, Swineford and Middleburg.

*Erie County:*

Erie, Albion, Corry, Waterford, Girard, Belle Valley, Union City.

*Lycoming County:*

Williamsport, Muncy, South Williamsport, Newberry, Montoursville, Montgomery, Jersey Shore, Hughesville and Duboistown.

*Northumberland County:*

Sunbury, Milton, Mount Carmel, Northumberland, Shamokin and Watsontown.

*Montour County:*

Danville.

*Union County:*

Mifflinburg and Lewisburg.

*Cumberland County:*

Mechanicsburg, Wormleysburg, Shiremanstown, Shippensburg, Newville, Mount Holly Springs, Lemoyne and Carlisle.

*Franklin County:*

Shippensburg, Chambersburg, Greencastle, Mercersburg, and Waynesboro.

*Centre County:*

Philipsburg, Bellefonte, Center Hall, Howard and Unionville.

*Armstrong County:*

Apollo, Vandergrift, Leechburg, Kittanning, Ford City, Freeport, Manorville and Parker's Landing.

*Fayette County:*

Uniontown, Belle Vernon, Brownsville, Connellsville, Dunbar, Everson, Fairchance, Masontown, South Brownsville and New Salem.

*Cameron County:*

Emporium and Driftwood.

*Potter County:*

Coudersport, Galeton and Shinglehouse.

*Perry County:*

Newport, Marysville, Duncannon, Bloomfield and Millerstown.

*Dauphin County:*

Hummelstown, Harrisburg, Highspire, Middletown, Penbrook, and Steelton.

*York County:*

York, Hanover, York Haven, Wrightsville, West York, Spring-grove, Red Lion, Glen Rock, Dillsburg, Dallastown and New Freedom.

*Bucks County:*

Richlandtown, Bristol, Chalfont, Doylestown, Perkasie, Quakertown, Sellersville, and New Hope.

*Butler County:*

Butler, Mars, Harmony, Zelienople, Evans City and Slippery Rock,

*Beaver County:*

Beaver Falls, New Brighton, Monaca, Rochester, Freedom, Bridgewater, Beaver and Ambridge.

*Lawrence County:*

New Castle, Wampum, Volant and Ellwood City.

*Mifflin County:*

McVeytown, Lewistown, Newton Hamilton and Reedsville.

*Juniata County:*

Mifflin and Port Royal.

*Montgomery County:*

Pottstown, Ambler, Bridgeport, Conshohocken, Hatboro, Jenkintown, Lansdale, Norristown, North Wales, Royersford, Souderton, Colmar and West Point.

*Crawford County:*

Meadville, Titusville, Saegerstown, Linesville, Hydetown, Conneautville, Conneant Lake, Cochranton and Cambridge Springs.

*Forest County:*

Tionesta.

Many inquiries are received in regard to the character of buckwheat offals. The two principal buckwheat products which we are called upon to examine from time to time, are buckwheat middlings and buckwheat feed. The analysis of the middlings has been found to be as high as 32% of crude protein, with 7% of crude fat and 4% of crude fibre. Some samples which were classed as buckwheat middlings, ran as low as 19% of protein. The buckwheat feed is simply a mixture of middlings and hulls, and the dividing line between these two products is sometimes difficult to be determined. Buckwheat feed will analyze about 12 to 14% of crude protein, with a maximum amount of crude fibre of about 20 to 25%. Buckwheat offals, which contain more than 19% of crude protein, and with less than 12% of crude fibre, are usually classed as buckwheat middlings. Those offals which run less in protein and exceed 12% in fibre are classed as buckwheat feeds. For your information I will give you the definitions, as adopted by the Association of Feed Control Officials of the

United States, at their annual meeting at Washington, D. C. The definitions may be of some value to you, if you will study them and they answer a great many questions that come up in regard to concentrated feeds.

#### DEFINITIONS

The following feeding stuffs definitions were adopted by the Association of Feed Control Officials of the United States. Many of these definitions were included in our former report; and inasmuch as new definitions were adopted at the meeting, held November 18, and 19, 1912, the total list of definitions is herewith presented.

*Alfalfa Meal* is the entire alfalfa hay ground, and does not contain an admixture of ground alfalfa straw or other foreign materials.

*Blood Meal* is ground dried blood.

*Brewers' Dried Grains* are the properly dried residue from cereals obtained in the manufacture of beer.

*Buckwheat Shorts, or Buckwheat Middlings*, are that portion of the buckwheat grain immediately inside of the hull after separation from the flour.

*Choice Cottonseed Meal* must be finely ground, and not necessarily bolted, perfectly sound and sweet in odor, yellow, free from excess of lint, and must contain at least 41 per cent. of protein.

*Chop* is a ground or chop feed composed of one or more different cereals or by-products thereof. If it bears a name descriptive of the kind of cereals, it must be made exclusively of the entire grains of those cereals.

*Clipped Oat Refuse* (term oat clippings not recognized), is the resultant by-product obtained in the manufacture of clipped oats. It may contain light, chaffy material broken from the ends of the hulls, empty hulls, light immature oats and dust. It must not contain an excessive amount of oat hulls.

*Corn Bran* is the outer coating of the corn kernel.

*Corn Feed Meal* is the sifting obtained in the manufacture of cracked corn and table meal from the whole grain.

*Cornstarch By-Product*, with corn bran, is that portion of commercial shelled corn that remains after the separation of the larger part of the starch, and the germ by the processes employed in the manufacture of corn-starch and glucose. It may or may not contain corn solubles.

*Cornstarch By-Product*, without corn bran, is that part of commercial shelled corn that remains after the separation of the larger part of the starch, the germ and the bran by the processes employed in the manufacture of cornstarch and glucose. It may or may not contain corn solubles.

*Cottonseed Feed* is a mixture of cottonseed meal and cottonseed hulls, containing less than 36 per cent. of protein.

*Cottonseed Meal* is a product of the cottonseed only, composed principally of the kernel with such portion of the hull as is necessary in the manufacture of oil; provided, that nothing shall be recognized as cottonseed meal that does not conform to the foregoing definition and that does not contain at least 36 per cent. of protein.

*Cracklings* are the residue after partially extracting the fats and

oils from the animal tissue. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

*Digestive Tankage* is the residue from animal tissue exclusive of hoof and horn especially prepared for feeding purposes by tanking under live steam, drying under high heat, and suitable grinding. If it contains any considerable amount of bone it must be designated Digester Meat and Bone Tankage.

*Distillers' Dried Grains* are the dried residue from cereals obtained in the manufacture of alcohol and distilled liquors. The product shall bear the designation indicating the cereal predominating.

*Flax Plant By-Product* is that portion of the flax plant remaining after the separation of the seed, the baste fiber and a portion of the shives, and consists of flax shives, flax pods, broken and immature flax seeds and the corticle tissue of the stem.

*Good Cottonseed Meal* must be finely ground, not necessarily bolted, of sweet odor, reasonably bright in color, and must contain at least 36 per cent. of protein.

*Grits* are the hard, flinty portions of Indian corn without hulls and germ.

*Hominy Meal*, *Hominy Feed*, or *Hominy Crop* is a mixture of the bran coating, the germ and a part of the starchy portion of the corn kernel obtained in the manufacture of hominy grits for human consumption.

*Malt Sprouts* are the sprouts of the barley grain. If the sprouts are derived from any other malted cereal, the source must be designated.

*Meal* is the clean, sound, ground product of the entire grain, cereal or seed which it purports to represent; Provided, that the following meals, qualified by their descriptive names, are to be known as viz: *Corn Germ Meal* is a product of the manufacture of starch, glucose and other corn products and is the germ layer from which a part of the corn oil has been extracted. *Linseed Meal* is the ground residue after extraction of part of the oil from ground flax seed.

*Meat Serap and Meat Meal* are the ground residue from animal tissue exclusive of hoof and bone. If they contain any considerable amount of bone, they must be designated Meat and Bone Scrap, or Meat and Bone Meal. If they bear a name descriptive of their kind, composition or origin, they must correspond thereto.

*Oat Groats* are the kernels of the oat berry with the hulls removed.

*Oat Hulls* are the outer chaffy coverings of the oat grain.

*Oat Middlings* are the floury portion of the oat groat obtained in the milling of rolled oats.

*Oat Shorts* are the covering of the oat grain lying immediately inside the hull, being a fuzzy material carrying with it considerable portions of the fine floury part of the groat obtained in the milling of rolled oats.

*Prime Cottonseed Meal* must be finely ground, not necessarily bolted, of sweet odor, reasonably bright in color, yellow, not brown or reddish, free from excess of lint, and must contain at least 38.6 per cent. protein.

*Red Dog* is a low grade wheat flour containing the finer particles of bran.

*Rice Bran* is the cuticle beneath the hull.

*Rice Hulls* are the outer chaffy coverings of the rice grain.

*Rice Polish* is the finely powdered material obtained in polishing the kernel.

*Screenings* are the smaller imperfect grains, weed seeds and other foreign material having feeding value, separated in cleaning the grain.

*Shipstuff*, or *Wheat Mixed Feed*, is a mixture of the products other than the flour obtained from the milling of the wheat berry.

*Shorts*, or *Standard Middlings*, are the fine particles of the outer and inner bran separated from bran and white middlings.

*Wheat Bran* is the coarse outer coatings of the wheat berry.

*Wheat White Middlings*, or *White Middlings*, are that part of the offal of wheat intermediate between shorts or standard middlings and red dog.

One of the greatest disappointments to us in our work this year, was our inability to get our annual bulletin printed. The report was prepared in March, 1913, and placed in the printer's hands, but on account of the large amount of printing that had to be done for the Legislature, the printing of the Pamphlet Laws, and the change in the public printer, we were unable to get this Bulletin until a few weeks ago. The bulletins have been mailed to those who are on our mailing list and there are copies in the office for distribution, which will be furnished to those who are desirous of having them. The bulletin has been prepared with great care. It gives the analysis of 1,400 samples which were taken by the Department through its agents and 200 samples which were sent in to be analyzed by individuals, making 1,600 samples in all. It also gives the compositions of those which were a compound feed.

Another great question before the people of Pennsylvania in regard to feed, is the numerous brands of chicken feeds that are on the markets. In the beginning of the year we had some trouble with the manufacturers of these compounds. A number were persistent in adding weed seeds to their chicken feeds and gave as an argument that the chickens are fond of them and eat them. This is true. But the law says that they shall not be sold in Pennsylvania as a feed and as they are a cheaper commodity, we hold that they have no right to enter into our chicken feeds to lower their value. There are some excellent feeds compounded and are fed with good results, but the trouble is the enormous price at which these feeds are retailed to our people. As I have stated before, in reports to your honorable body, these chicken feeds, retailing at \$50 and \$60 per ton, are too high a price when compared with the price of wheat at 1½c per pound, or \$30 per ton, and there are a great many things used in chicken feeds that are cheaper than wheat, but people will buy prepared chicken feeds. There is a demand for it, and the man who manufactures a good clean chicken feed and sells it for a fair price, should find a ready market for his feed.

What our people need in Pennsylvania is to give more heed to the valuable information that is prepared by the Experimental Station, at State College, on the question of feeding, the valuable pamphlets which are prepared by the Department of Agriculture on this subject, the instructors that are sent out in the Farmers' Institute, the articles which are written in the farmers' journals and papers and

the bulletins which are distributed by the U. S. Department of Agriculture on this great subject of what feed is and how to feed it. Some men will feed the same feed to fatten steers or hogs that they will to produce milk and then condemn the feed. Other men will feed the same feed that they feed to their dairy cows to produce milk, to their steers and hogs and then condemn the feed because it will not fatten them. If you do not know yourself how to feed properly, please secure the information from some source. When the State expends large sums of money through its Experiment Stations, as I have indicated before, it behooves her citizens to take advantage of these means of information, and in this way they will not only save money in producing food, but they will produce so much more which will go to help sustain the great population which we now have in our Commonwealth.

I wish to say that the day is past when the official of the Department of Agriculture who calls upon the feed dealers and millers to look over their stock and, perchance take samples, that he looks upon him with suspicion, but I may say they are welcome to the place of business and full information is always given, and we have been working hand in hand with the Millers' Association, the millers and the feed dealers of our State, both great and small, and we owe a large debt of gratitude to these men for their co-operation. My good friends, you have this law for your protection. Will you educate yourselves on this subject? Remember—the true way to buy your feed is on its high protein, high fat and low fiber analysis.

The CHAIRMAN: Next on the program is an address by Hon. A. L. Martin, Deputy Secretary of Agriculture, on Institute and Advisory Work of the Department of Agriculture. I have the pleasure to introduce Hon. A. L. Martin.

MR. MARTIN: Mr. Chairman, Honorable Members of the Board of Agriculture, Ladies and Friends: I realize that I am standing in the presence of the honorable organization known within the bounds of the State—honorable, did I say? Yes, honorable with age, because for well nigh onto fifty years have you acted better your part than any other like organization of which I have knowledge. Nay, more than this; at the very inception of your organization, if records are true, and I believe they are, from that day until this present, you have stood as a mighty bulwark in the defence and advancement of a higher and better agriculture. And more than that, you have stood for the homes of Pennsylvania, for better home equipment, better school equipment and for real life upon the farm.

You have not only done this, but your work has been the most disinterestedly impartial of any work of which I have knowledge within the bounds of the State, in one or two respects. Not a dollar, so far as I am able to learn, has ever been demanded or paid to a member of the State Board of Agriculture for all this disinterested work within almost half a century. Can you point to a body of men anywhere in any State of the Union who ought to command higher respect and recognition than the State Board of Agriculture of the great Commonwealth of Pennsylvania? This is no fulsome flattery that I am speaking today, and I verily believe that the source of

strength and the great power that you possess in legislation and agricultural advancement today stands by your record of disinterested, impartial work and labor during your lives for this greatest of all occupations.

Before me tonight are men who will verify what I say and who form almost a uniting link from one generation to another. I see to my left here Father Downing; I can see Father Herr over here to the right and Father Bond over her in the center, and I don't get my eye on old Father Kahler, but he has been here, and I don't know if I have missed others of these men who have, for all these years, been the great and mighty wheel horses in this honorable and noble work.

Now, my friends, as you well know, my life for the past fifteen years, has been one entirely devoted to the work which you have in hand, and you will pardon me if, at this time, I should attempt to read a brief paper, developing in a brief manner, a little outline of the Farmers' Institute work from its organization down to the present time. I have placed this in manuscript form, feeling safer than to trust myself to talking in an extemporaneous manner upon this great, broad question, realizing the flight of time and the branches and by-branches which our mind might lead us into were we to speak off-hand rather than to read; hence you will understand why I have reduced what I have to say to manuscript.

Secretary Martin then presented the following paper:

#### FARMERS' INSTITUTES IN PENNSYLVANIA

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By HON. A. L. MARTIN, *Deputy Secretary of Agriculture*

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The history of the Farmers' Institutes of Pennsylvania, from their organization by State authority in 1887 to the present date, is an interesting one, at which date the Board of Agriculture called a meeting of its members for the consideration of agricultural interests of the State. This Board of Agriculture was and is today, composed of duly elected representatives of county agricultural societies and was placed in charge of the local management of Farmers' Institutes, which assisted in these and continued to assist under the various acts of Assembly following the Act of 1877. By Act of Assembly of 1885, the Legislature granted an appropriation of \$1,000 for the actual and necessary expenses of holding local farmers' institutes. This appropriation, though seemingly small, was of great benefit to the farmers. In 1887, the Legislature increased the annual appropriation to \$3,000. During 1890, sixty-five institutes were held, and in 1891, the appropriation was increased to \$7,000, and that year there was a proportionate increase of institutes to 84, sixty-two of the sixty-seven counties of the State had representatives on the Board of Agriculture.

The results accruing from these early institutes in Pennsylvania cannot be well over-estimated. The work continued under the management of the State Board of Agriculture and its Secretary, Col.

Thomas J. Edge, until 1895, when, by Act of Assembly, the Department of Agriculture was established, in which was placed the Division of Farmers' Institutes. The Deputy Secretary of Agriculture, by virtue of his position, became Director of Farmers' Institutes for the State. Prof. John Hamilton, of State College, Center county, Pa., was, in 1895, appointed by Governor Daniel H. Hastings as first Director of Institutes and served in that capacity until 1899. During his tenure of office, successful institutes were held in every county of the State, interest in the work was increased and the appropriation was raised to \$12,500 per annum. In 1900 I was appointed Deputy Secretary and Director of Farmers' Institutes by Governor William A. Stone; in 1901 the appropriation for this work was increased to \$15,000 per annum.

To show the marked development in the work, the Legislature of 1913 appropriated for Farmers' Institutes \$22,500 per annum. During the 18 years in which Institutes have been held under the Department of Agriculture, 6,634 days of institutes have been held, with an annual attendance of over 150,000 people. To estimate the benefits derived from these meetings would be a stupendous task. From the month of December until March we have five corps of lecturers traveling continually throughout the State, not including Movable Institute School Instructors, giving lessons and instructions in every department of agricultural work. At these meetings lessons are given on the most approved methods of dairy management, including feeding, stabling, care of milk, butter-making and how and where to market most profitably these products. In soil improvement, instruction is given as to maintaining nitrogen, phosphoric acid and potash in proper proportions, and that leguminous bacteria so essential in the growth of legumes and building up within the soil that most costly of all its fertility—nitrogen. The management of swine, sheep husbandry, market gardening, horticulture, bookkeeping and in truth, every line of agricultural pursuit for which Pennsylvania has been noted, is intelligently presented at its institutes. At least one session of these institutes has been devoted to the interest of education, such as would be best adapted to farmer and family, and we are gratified to say that Pennsylvania has established centralized schools, as well as township high schools to which the children attend and receive instructions more in keeping with their surroundings and better calculated to fit them for life's work. They also hold ladies' sessions, devoted to the interest of the country home, its sanitation, domestic arrangements, as well as the social environments of country life.

The Farmers' Institutes of Pennsylvania have long passed their problematic stage and are today filling an important place in the agricultural and commercial interests of the Commonwealth. Their system of management, although not in every respect complete, has been patterned after by many states in the Union. The continuous and increasing demand for instruction is daily coming to us from every portion of the State, which evinces the fact that the farmers of today are well aware of and are alert to the importance of adopting correct and improved methods in the conduct of their farm operations; also that agricultural chemistry and botany have, within the decade, developed facts, without a knowledge of which no tiller of

the soil can expect to succeed to any considerable extent. To the work of analyzing and developing these fundamental truths and lessons, the Farmers' Institutes of Pennsylvania are devoted.

I herein present a tabulated attendance of Farmers' Institutes from the time of their organization, under the Department to the present:

COMPARATIVE STATEMENT OF WORK FROM 1895 to 1913, INC.

| Year.        | Amount of appropriation. | Number of days institute held. | Number of lecturers employed. | Number of sessions held. | Average per session. | Total attendance each year. |
|--------------|--------------------------|--------------------------------|-------------------------------|--------------------------|----------------------|-----------------------------|
| 1895, .....  | \$7,500                  | 264                            | 82                            | .....                    | .....                | 46,694                      |
| 1896, .....  | 7,500                    | 380                            | 82                            | .....                    | .....                | 50,000                      |
| 1897, .....  | 7,500                    | 305                            | 50                            | .....                    | .....                | 50,000                      |
| 1898, .....  | 7,500                    | 311                            | 35                            | 791                      | 108                  | 85,346                      |
| 1899, .....  | 12,500                   | 322                            | 60                            | 816                      | 183                  | 149,855                     |
| 1900, .....  | 12,500                   | 335                            | 59                            | 848                      | 170                  | 144,328                     |
| 1901, .....  | 15,000                   | 324                            | 51                            | 782                      | 185                  | 144,431                     |
| 1902, .....  | 15,000                   | 327                            | 52                            | 831                      | 148                  | 123,384                     |
| 1903, .....  | 17,500                   | 325                            | 54                            | 804                      | 178                  | 143,954                     |
| 1904, .....  | 17,500                   | 324                            | 57                            | 862                      | 175                  | 150,932                     |
| 1905, .....  | 20,000                   | 393                            | 53                            | 987                      | 168                  | 165,553                     |
| 1906, .....  | 20,000                   | 392                            | 56                            | 981                      | 150                  | 146,915                     |
| 1907, .....  | 20,000                   | 404                            | 68                            | 989                      | 182                  | 180,218                     |
| 1908, .....  | 20,000                   | 394                            | 73                            | 982                      | 189                  | 185,812                     |
| 1909, .....  | 22,500                   | 438                            | 69                            | 1,061                    | 200                  | 205,895                     |
| 1910, .....  | 22,500                   | 477                            | 75                            | 1,100                    | 200                  | 209,383                     |
| 1911, .....  | 22,500                   | 481                            | 70                            | 1,185                    | 162                  | 191,213                     |
| 1912, .....  | 22,500                   | 438                            | 54                            | 1,075                    | 163                  | 169,273                     |
| Total, ..... | \$290,000                | 6,634                          | 1,100                         | 14,094                   | .....                | 2,543,186                   |

During this period of practically two decades, should time permit, it would be exceedingly interesting and instructive to draw a line of comparison between the attitude of the farmers towards these meetings in their early stage and that of today, also methods employed and implements used in the cultivation of the land and harvesting of crops. In dairying, an entire lack of system prevailed, the careful breeding of the dairy cow was little thought of, the old family orchard was practically the only source from which fruit for the market was derived, the question of soil-building had only begun to interest the more progressive farmers. Largely as a result of teachings developed at Farmers' Institutes and Movable Institute Schools and kindred organizations, the farmer is rapidly learning how he can best feed the world and at the same time year by year maintain and increase the fertility of the soil he cultivates. The solution of these problems and a score of others of almost equal importance, the Farmers' Institutes of Pennsylvania is joining with the rank and file of farmers to properly solve.

As an outgrowth of instruction given at these meetings and at the call of the farmers of our State, the last Legislature appropriated \$40,000 for the employment of 10 farm experts or advisers, whose appointment went into effect on August 1st last. The work of these

experts is divided as follows: Soils and Farm Crops, R. P. Kester, Newtown, Pa., and Prof. Franklin Menges, York, Pa.; Dairying and Animal Husbandry, Dr. M. E. Conard, Westgrove, Pa., and L. W. Lighty, East Berlin, Pa.; Poultry, W. Theo. Wittman, Allentown, Pa., and Frank Kline, Spring City, Pa.; Farm Drainage and Water Supply, Chas. G. McLain, New Ringgold, Pa.; Market Gardening and Fruits, Sheldon W. Funk, Boyertown, Pa.; Co-operation in Farming, E. B. Dorsett, Mansfield, Pa.; Home Sanitation and Household Economics, Mrs. Jean Kane Foulke, West Chester, Pa. These advisers are an outgrowth of the Farmers' Institutes, at which teachings have been carried on for many years outlining a system of Crop Rotation and Soil Improvement, methods along every line of Dairying and Animal Husbandry, the Poultry interest that is making such rapid progress in Pennsylvania is calling for help from many sources, in the matter of farm drainage and water supply the future success of many farms depends. With the demand of greater supplies of garden stuffs and fruits, especially farms surrounding our cities and towns, an important field is covered by our advisers in this branch, co-operation in farming is also of vital importance, as well as the sale of farm products where shipping can be more economically carried on in carload lots. The only lady member of this corps, having in charge Home Sanitation and Household Economics, is being supported in her work by practically unanimous effort of the Grange, Women's Clubs, and all persons who are interested in the betterment of the Farm Home of the State. From the time they have been in the field, that is, August 1, until December 1, over 2,000 farms have been visited.

In this connection I desire to say a word with regard to work performed by the lady adviser, Mrs. Jean Kane Foulke, who undertook and successfully carried out, through the kind co-operation of the Lehigh Valley Railroad, the equipment demonstrating the best methods of Home Sanitation in the disposal of sewerage and water supply, domestic science; and, in fact, most of the important equipments for a Sanitary Home, especially emphasizing the utensils that go to relieve burdensome labor in the home. This car started at Athens, Pa., and ended at Easton, Pa., stopping at various stations along the road, and was visited by 6,500 people, many of whom were wives of farmers.

At the beginning of our institutes, December 1st, we found difficulty in removing our corps of advisers from the field and transferring them to institute work, on account of hundreds of requests for their services, thus emphasizing the general assistance and welcome given on the part of the farmers to our corps of farm advisers, which differs from most other systems of kindred work, in that it embraces practically every line of farm operation carried on within the State, hence it matters not whether you are a dairy farmer, fruit or market gardener, following a line of crop rotation, engaged in poultry business, should your land need underdrainage or planning for system of water supply for your house or barn or is your community interested in organizing a co-operative system of growing crops and marketing the same? In all these various lines the State has provided the funds for supplying you an adviser who will come to your farm home free of cost and assist you to the extent of his ability in the development of your respective condition.

SECRETARY CRITCHFIELD: Mr. Chairman, before you proceed with the next topic, I want to say that I enjoyed Mr. Martin's paper very much; but I don't see why he discriminated against me; when he was talking about the fathers, he spoke of Father Herr and the gentleman from Hughesville, Mr. Kahler, but he didn't say a word about me; that must be owing to the fact that for some years past I have been travelling with the great grandfathers.

PROF. SURFACE: Tomorrow morning, beginning at 9.15, I shall have a demonstration of the scale parasite, showing the specimens under the microscope, by my assistant, Prof. Musgrave at this window. Also, we are taking a few more orchards for demonstration purposes in this State, and if any members of this Board know of any place where a demonstration orchard is needed, with express regard to demonstrations in improving and spraying, I shall be glad to have them confer with me some time tomorrow. I will also state that there are some pictures of my own orchard on exhibition there in the front of the room, leaning against the desks.

THE CHAIRMAN: Next, is an address on "Domestic Science and Rural Homes," by the only lady member of the Board. It is my privilege and pleasure to introduce Mrs. Jean Kane Foulke.

Mrs. Foulke spoke as follows:

#### DOMESTIC SCIENCE AND RURAL HOMES.

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By MRS. JEAN KANE FOULKE, *West Chester, Pa.*

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Mr. Chairman and Fellow Members: I regard this as a great opportunity and a great pleasure. In the first place, I have filled two places on this Board; I understand I am the only woman member of it and I am the baby of it, also; I am a grandmother, and that shows that this Board must be a pretty old Board; so I feel, as I told you, that it is a great privilege to be here and address you tonight.

I wish to take advantage of the opportunity thus given me to draw your attention to and enlist your sympathy in the work I have been doing and the work I hope to organize and do for the rural homes of Pennsylvania. My appointment to the position of Farm Adviser in Home Economics and Household Sanitation is couched in such terms that I am in a position to deal and treat with any conditions pertaining to home building in its broadest sense. The only question of limit to the scope of the work would seem to be, by own personal limitations and ability, and possibly, the matter of funds to carry the work on. Mr. Martin sent for me immediately after my appointment to discuss with me how I was to begin, or rather how and where I was to begin my work. Both he and Secretary Critchfield were ready and willing to help and co-operate with me in any way that they could that would help to develop and benefit the rural homes of the State.

The first step seemed to me to let the people know of my appointment and what it stood for. The idea of any State aid or a

department for instruction and help in home making and especially adapted to meet the needs of women as home builders, was indeed an innovation. It is difficult to awake the women themselves to the fact that the woman of today, especially the farm woman of to-day, must have special training and equipment to be her husband's companion and partner. Far greater than ever before are the demands on her for making the house a home, not merely a shelter and greater than ever the need that she should enter into his life and develop her own on a broader scale than was possible to her mother and grandmother. It is difficult to make her realize that to do this she must have up-to-date appliances to work with and the knowledge of how to use and care for them, a knowledge of food and fabrics, of health and sanitation, that a generation ago was unknown. To go into the homes of a proud, self-respecting and sensitive people and suggest changes of any such kind is a difficult proposition, and if the suggestions are to be helpful they must be given with tact and understanding, with sympathy and not pity. And last, but not least, the person undertaking such work must be able to give real intelligent help, to teach better ways of living and doing rather than different ways.

An added difficulty to all this is the lack of ready money on the most of our farms with which to make improvements or changes, even when the need of them is recognized, and care must be taken by the person who wishes to teach and help, not to suggest things that may be desirable, but are impossible, for by so doing it is easy to sow the seed of discontent and unhappiness in the hearts and homes of the very people we wish to help, thus destroying the reason and desire for home building and rather helping in the disintegration of family life in the country—that bond which, after all, and under all, is the essential to the well being of our nation.

When I came into office the Department already had one excellent bulletin, "The Principles of Domestic Science," and with that and what I myself stood for was its only equipment for the new line of work that it was undertaking. But even so, we have done much toward a better organization and are developing many lines of work and I feel very hopeful regarding the possibilities of the future. Mr. Martin's knowledge and appreciative understanding of the work to be done has been of the greatest help. It was with his consent that I was able to take advantage of an opportunity in the early Autumn to take a car, demonstrating household matters and home economics over the Lehigh Valley railroad. This was arranged through the courtesy of its Agriculturist, Mr. F. R. Stevens, who realizes that a successful farming community means a happy, healthful, educated community and that to have such, we must have, first, good up-to-date homes, in which may live happy and content men and women and healthy, happy families of boys and girls. Homes where people may have good food, good water, good drainage, good houses—in fact, such homes that the people living in them may be able to make good incomes and be good citizens, and form a community where other people wish to come and settle. The railroad furnished the car and attended to its running on scheduled time from place to place. The exhibits and instructions given were under my charge and direction. We had on exhibition, working models of many

things pertaining to health and comfort in the home. Among the most interesting were the models showing the possibility of plumbing and water supply in the farm house, with a septic tank and sewage system connected, all within the reach of the average farmer's pocket-book.

We had a demonstrator at hand to explain how much of this might be installed by the man himself at little cost, beyond his labor. Model beds and bedrooms, model door yards, model working dresses for adults and clothes for children, with explanations of the time and cost of making, and of the different points of value as to color, fabrics, cheapness, etc. An exhibit of kitchen utensils, washing machines, churns, bottle sterilizers, steamers, fireless cookers, etc., as well as samples of our free travelling libraries from the State Library, etc.; bulletins from our health department and other departments, all pertaining to health in the home, and household economics. We also had a cabinet or closet planned for use in one room or small schoolhouses in giving lessons in domestic science, fully equipped with tins, alcohol stove, fireless cooker, etc., and with prices of the details and total complete and specifications as to how to make the cabinet. Besides this we had domestic science lectures every day and demonstrations as to how to cook and use cheap meats and foods properly.

Also, Mr. Kline, one of the State Farm Advisers, was with us and had an exhibit of a model poultry house and other poultry appliances and gave interesting short talks and explanations of his methods of how to raise chickens and eggs, with plans suitable to the small producer who usually is the farmer's wife. I myself spoke daily, often several times a day on general topics pertaining to the home and home life and home economics in the broadest sense. I wish you gentlemen could have seen the eager crowd of men, women and young girls and boys who crowded through the car day after day coming for miles to see and ask for instruction and help. Frequently women would come in the morning and go back miles to their homes to bring their husbands in the afternoon to see and learn also. The children from the high schools and grammar schools were brought to the car. In many cases, where this was not possible, I went myself and addressed them in the schools urging the love of and pride in their homes and their duties there. It was pathetic to see their craving for books and desire to learn how they could acquire the use of the travelling libraries. This was especially noticeable in the little boys who crowded around the libraries from the time the car opened until it closed. The storekeepers came to see the household appliances and to order duplicates for their customers; and even today I am still getting letters asking me about this and that and where it can be bought.

While our coming was not advertised more than by a few personal letters sent to acquaintances here and there down the line, we had to have halls to hold the crowds who came to our meetings as the car would not contain them, and in every case, with one exception, there were offered free by the community in which we stopped. I have lectured from a box in the middle of the road, from the end of a car, in churches, in halls and schools, anywhere where we could get room for the people to sit and hear, and this seems to

me to show that the homes of our State are ready to be helped if we will only show the homemakers the way. I have visited many parts of the State of Pennsylvania, to speak to teachers, urging on them to teach Domestic Science or Home Economics and explaining simple methods of doing this, even in the small rural school. A great difficulty here is that a great many of our young teachers are not themselves competent to give such instruction, and are scared from making an attempt to even teach what they know, because the name domestic science, is so formidable, not realizing that it should mean instruction in the simplest form of so-called housekeeping properly made beds, well aired rooms, simple plain cooking, indeed merely house work done in the best and easiest way, but with an intelligence that is labor saving and economical in time and money.

I am anxious to work with the Department of Education in this line and would be glad to go to any part of the State to meet parents and teachers in an effort to explain how important it is for our young people and their homes to have such things taught in practical lessons, both at home and in school and to awaken in them a civic pride that stands for good citizenship. I find that I must have circulars and bulletins to send or leave with people I am trying to help, bulletins dealing with the preparation of food, with diets for the sick, with care of infants and children, arranging and furnishing a room and homes, the conservation of strength, efficiency in the general work of the house, such as sewing, laundry care of clothes, beds, bedding, bread and cake making, bulletins treating of the care of water supply and drainage, the way to start and run clubs for civic and home betterment.

All these things and many more are needed to help and brighten and enlarge the outlook of the people living in our rural homes. To teach them the importance of knowing how to serve and spend, how to work and rest, and live, to grow and develop, awake them to their civic duties and possibilities. I must find ways and means to arouse parents to their duty and the possibility of bettering by their personal and actual interest, the surroundings of their children in the school as well as in the home. To teach the children and parents how the home and school must co-operate, to help women to run their homes in a business-like way and to market their eggs, chickens, butter, etc., so that they can get the best prices for their product by work co-operatively for and with each other. You can see for yourself what a great undertaking it is.

The small towns needs as much of all this as the rural homes and indeed the families of each are so closely allied that in most cases the same interests affect both communities. Therefore, I have been visiting many small villages and towns, speaking to the citizens of their home and civic duty, the care of their wells and water supply, drainage and lack of drainage, lighting and cleanliness of the streets, beauty to their yards and houses, their need to have good home economics in the schools and to practice it at home and to make the lessons taught in the schools of real value.

Everywhere I go in institute work or as a Farm Adviser, my suggestions and plans have nearly always been met with interest and gratitude by the people I come in contact with and I have hundreds of women come to me for advice and sympathy. Men, too, seem to

feel the need of understanding and help in their efforts to make homes and have come to me for suggestions on almost every topic connected with their lives and work. The field is so wide, the need is so great that we have as yet but touched the surface of what there is to do, and I shall need more help. I can organize it and do much of the work but I cannot do it all alone. We will need other teachers, experts on many lines to send over the State to meet the varying needs of various localities before long. I shall need the help of this Board and the Department of Agriculture and every official and department of the Government, every citizen of the State. They must all help me, no petty jealousy must creep into this work for it is for the benefit of the homes, our homes. Alone I must fail. I am like Moses when he was in the battle where he won while he held his arms aloof, but when he became fatigued and they fell to his side, the battle went against him, then Aaron and Joshua, his brother and friend, came to his aid and held his arms up and the tide of battle was again changed and he won. My arms are still aloft, but the burden is heavy and I need your help.

The CHAIRMAN: Next, is an address by Hon. Samuel W. Pennypacker, Ex-Governor and Member of The Public Service Commission.

SECRETARY CRITCHFIELD: I am very sorry, Mr. Chairman, to announce that I had a letter today from Governor Pennypacker, saying it would be impossible for him to be here.

The CHAIRMAN: Next, is an address on "Labor and Safety Laws of Pennsylvania," by Hon. John Price Jackson, Commissioner of Labor and Industry.

MR. JACKSON: Ladies and Gentlemen: If I could speak to you as gracefully and as interestingly as the preceding speaker, I would go into politics instead of merely being a State official. I also must read my address to prevent spreading over too much time, so I will follow the fine example of my predecessor, Mr. Martin.

Mr. Jackson then presented the following paper:

#### LABOR AND SAFETY LAWS OF PENNSYLVANIA

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By HON. JOHN PRICE JACKSON, *Commissioner of Labor and Industry*

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During the past several years, your Commonwealth, at your bidding, has been doing a magnificent work in conserving the natural and human resources of the State and enabling them to be utilized to the best advantage and without waste. Thus you have heard, or will hear, of the great State Forestry Reserve, already a million acres in extent, which is destined to protect the moisture available for the soil on your farms and also to prevent the actual removal of that soil through erosion. You, yourselves have had a large hand, with our strong State Department of Agriculture and with the co-operation of the Pennsylvania State College, in helping the farmer to use

his land to the best advantage and keep it in the State of maximum fertility. It has been a great work, Secretary Critchfield, and this Board and the farmers of Pennsylvania owe you and your force thanks. You have heard of the way in which the Department of Agriculture is leading the nation in preserving the foods pure and healthful and in eradicating the epidemic diseases among animals and the ravages of insects, and has been carrying on institutional and other valuable work. You have heard or will hear of the work of the Fire Marshal in preventing the enormous loss of property, as well as life, through fire, and of the waterways work which is destined, through the intelligent direction of the Waterways Commission, to harness our streams in order that destructive floods may become unknown, that our waters may run strong, even in the dry seasons, and in order that our great wealth of water power may become available to our people. And all this can be done at a cost which will be paid for in a few years from the saving which will be occasioned by preventing floods. They are doing it in Germany. It is a great work and should have your backing. You have heard or will hear of the large work which is being done by the State through the Highway Department in advancing the ease of inter-communication between our communities and the resultant reduction in the cost of moving farm products to their destination. You have heard of the great conservation of life which has been going on through the Health Department by making the drinking waters of Pennsylvania pure, having her sewage disposed of properly, and by reducing epidemics and contagious diseases.

This afternoon you heard of the enormous work the State is carrying on in preparing youth for their work in life, a work which is now in a great state of transition and is being effectively and practically handled by the Department of Education. We started our public school system many years ago to prepare youth to do the work they had to do; ten years ago we made some changes, and now we are distinctly making a move ahead and we are making a move to more directly prepare the boy or girl for his vocational life after he has reached his full age. You have heard, in this same connection, of the unusual revival or the unusual extension work which is being done by your State College in carrying both to the rural and industrial districts information which cannot well be otherwise obtained than through the medium of your State College. In like manner you have heard at these sessions of the care of our fish and game, the useful publicity carried on by the government, including the farmers' institute work, of future legislation, which is desirable for the general weal, of proper protection from the criminal through the State Police, and of the proper handling and development of public utilities.

Your Secretary of Agriculture might well have added to these other expositions of the work which is being done by your administration, that carried on by the Department of Public Buildings and Grounds, which has developed a system of purchasing and accounting probably unequaled in any other state of the Union. I mention that tonight because I understand, and I have made some little investigation, that there is probably no state in the Union that has a more perfect or more efficient method of purchasing for State purposes

and handling all that business end of the government. Please bear that in mind, and if anybody says anything to the contrary, make them prove it, for I happen to know, because I have studied the systems of all the states in the Union.

SECRETARY CRITCHFIELD: Allow me to state right there that I spoke to Mr. Rambo—we all know he is a very modest man, but above that, he is a very busy man, but he has not been very well and could not come, and I said, "We are very sorry you cannot be here."

MR. JACKSON: I am glad to know that the Secretary did not leave out Mr. Rambo, whom he appreciates as much as I do.

Let me say now that in many of these things, if I may use a slang expression, I am a greeny, I just came down a few months ago, I was nothing but a pedagogue and you know how good for nothing a pedagogue is, but sometimes they have their eyes open and I have been rather wide awake in studying these movements in other states, and I find that quietly and slowly this State has forged ahead of the great bulk of these State movements for helping the people by giving improved methods, by making savings, and so forth, has forged ahead of the great bulk of the states of the Union. If you doubt it, I dare you to spend one day under this roof going from department to department and getting them to tell you what they are doing; then I dare you to come to me and deny my statement.

Now, furthermore, I want to say that this, in many ways, is the greatest state in the Union to deal with such problems. We have our little city of Philadelphia, about two million people. New York city has, I think, something like five millions. New York State has about nine millions, leaving between four and five million population for the state, outside of New York city. Pennsylvania has about eight million, leaving about six million population for the State outside of Philadelphia. You take out these few big metropolitan cities, and Pennsylvania is the greatest state in population in the Union, and if you are in a position ever to travel from point to point and visit all the little towns scattered over Pennsylvania and see the prosperity, see the active energy and industry of our people, you cannot fail to end that trip with great pride. I cannot help saying these things, people, because they are bound up in me, and when I heard, down in Philadelphia the other day, the Secretary of one of the great charity organizations of Pennsylvania, get up and say that the Pennsylvania people are beyond the possibility of being worth while—he used stronger language than that—because some of them are Quakers that won't move—I'm a Quaker myself—a lot of them are Pennsylvania Dutch, who are thickskulls—the other half of me is Pennsylvania Dutch—the rest of them are Scotch Irish, who are cranky—now, he gave a most terrific talk about us Pennsylvanians, and yet that audience applauded. Let's quit that and let's form a booster society and get busy and stand up for Pennsylvania.

I got off my subject; I'm afraid I'll take too much time, Mr. Secretary. I am before you for a few minutes this evening to take up another phase of State activity which is no altogether new, but

which has been so broadened in its scope and powers as to make the subject one of some interest to all people in the Commonwealth, namely, the safeguarding of the industrial people of the State. It is particularly fitting that this body should take an interest in this work, particularly because farmers as a class are interested and active supporters of all good movements tending toward the welfare of the people, whether or not the subject relates to agriculture, and particularly because you represent one of the greatest industries of the State and are in large measure subject to the laws having to do with industrial pursuits.

The Department of Labor and Industry was established by Act of Legislature and the approval of the Governor, on June 2d, 1913. The law states that "all rooms, buildings, and places in this Commonwealth where labor is employed, or hereafter shall be employed, shall be so constructed, equipped and arranged, operated and conducted, in all respects, as to provide reasonable and adequate protection for the life, health, safety and morals of all persons employed therein. For the carrying into effect of this provision and the provisions of all the laws of this Commonwealth, the enforcement of which is now or shall hereafter be entrusted to or imposed upon the Commissioner or Department of Labor and Industry, the Industrial Board shall have power to make, order, amend and repeal, general rules and regulations necessary for applying such provisions to specified conditions and to prescribe means, methods and practices to carry into effect and enforce such provisions." In other words, the law relating to the workers of the Commonwealth is that hereafter all places shall have reasonable and adequate protection for the life, health, safety and morals of all persons employed therein.

Further, an Industrial Board has been created, which has the right and power to make and carry into effect such rules and regulations as may be necessary to obtain this adequate and reasonable protection, while at the same time was organized the Executive Department of Labor and Industry, whose duty it is to enforce such rules and regulations. I am glad to see such a law on the statute books, and if, with my staff, we can carry out the ideals of the men who drew it and the Legislature which passed it, we will do a service to Pennsylvania. As illustrating the methods which are pursued by the Industrial Board, I might point to the work which is being carried on with reference to places of amusement, such as picture shows. As you are well aware, such places give admission to millions of people during the year. If they are overcrowded or wrongly constructed, the cry of fire, the smell or sight of smoke or any other untoward event may set up a panic with the resultant loss of much life and the crippling of many persons. The American, as a rule, is careless of his own safety and depends largely upon the man in charge to see that he is safeguarded. Even our genial Secretary of Agriculture, if he is in a hurry and thinks he needs to make an engagement, will jump right before a trolley car and take the chance of being run over. That's the way we all do here in the United States. How about that, Mr. Secretary?

SECRETARY CRITCHFIELD: I guess I'm guilty.

MR. JACKSON: It is very foolish. As a matter of actual fact, the picture shows of Pennsylvania have in a regrettably large number of instances been lacking in proper protection to their patrons. Possibly the most horrible proof of this occurred in the case of the Boyerstown disaster some years ago. The Department of Labor and Industry has arranged with representatives of the picture shows, some of the architects of the State and others, to make tests for the purpose of determining just what constitutes safety in such an establishment. Thus, this committee, with the help of the Department, will select a large number of such places and will have the audiences, at a signal, rush out through the exits as rapidly as they can without injury one to another. By such practical means it is hoped to determine how wide should be the aisles, their number, how large the exits, the dimensions for stairways, and a host of other details of prime importance.

In addition to this, the committee will gather together a number of old reels or films, such as are used in picture machines, and by setting them on fire have a practical way of testing the various types of fire-extinguishers at present available. Having obtained this information, it will be submitted to the Industrial Board with recommendations. The Industrial Board will then give careful consideration to these recommendations, and will, after consulting various experts, formulate regulations, which would safeguard the people to a maximum degree when attending such institutions of pleasure. In like manner, the Industrial Board will take up various other establishments where people are employed or where they gather in large numbers. That is the way we expect to go through with all of our work and have already started to do it.

I have spoken for a moment in the paper about the question of fire in a factory. I will read a few words of that. Thus, for instance, the fire hazard in the textile mill or tobacco manufactory is often enormously great. There may be six floors to a large building, each floor containing from two to three hundred girls and women. This building may have one, two, three or four stairways. Possibly one or two of these are fire-proof, and yet a holocaust may occur of the most terrific nature. This, upon the cry of fire, the several hundred girls immediately fill these stairways. The first floor stairways at once become choked by the girls upon the second floor, and those from the floors above who manage to get through crush down upon those who are already caught near the bottom in an inextricable mob. The result is, therefore, a terrific loss of life and limb. To get twelve hundred girls down a stairway in an incredibly short time, as is attempted in a panic, or is needed in the case of a quick fire, is ordinarily an impossible task. As a result, gentlemen, I say to you now, there are scores of places in your Commonwealth where at any instance of the day may happen a catastrophe which will make the whole State weep. There is a great problem before us in this matter. Thus, we must learn to make stairways and fire-escapes which will really answer the purpose, to build fire-towers—which are nothing but fire-proofed inside stairways—or to use fire walls.

The only satisfactory method which I see for handling such large numbers of people is to use the fire-wall; that is, to have the build-

ings divided into two parts by a fire-resisting partition. If then, a fire occurs on one side the girls or occupants pass to the other and before the fire can possibly get across from one side to the other they have plenty of time to descend leisurely and make their escape. This solution, however, is not always possible. Our present little iron fire-escape has possibilities of a ghastly nature which are blood-curdling. Thus many times it has happened that human beings have crowded out on the platforms of such escapes to be fried and frizzled in flames belching from the windows below. And yet we have to use those fire escapes more or less, in some cases, they are better than nothing.

Now this work does not apply only to manufacturing industries and the railroads and places of amusement, and so forth, but also to the farmer. We have numerous instances of accidental deaths, broken limbs, blindness, the loss of fingers and other injuries which have occurred through avoidable accident on the farm. The newspapers do not, as a rule, speak much of such accidents, as the farmer or his employee is inclined not to push himself into the public print and the reporter of the paper in most cases has no means of learning of the accidents. I don't believe there is a man here who does not know some man on the farm who has been injured in carrying on his work, and I expect most of you can name a number; I can name a number and I have not been on a farm very much since I was a boy. Nevertheless, I venture to say that there is not a man in this audience who does not know of one or more farmers or farm employees who has not suffered some serious accident, or was permanently maimed through accident occurring in his vocation. As in the case of machinery in the shops, one-half of these accidents can doubtless be avoided by proper precautions. Do the feed cutters, the threshing machines, the traction engines, the mowing machines, the reapers, and so forth, have proper guards to prevent accidental injury to the operatives? Remember, a man may be in love, he may be overburdened with worry, he may be just so joyously happy, that he forgets to think about himself for a moment, and just at that instant the accident occurs. That happens to the keenest minded of us now and then. Are the stairs, the barn mows, etc., properly protected at dangerous spots? Are the many other places where men work on the farm, which by a little thoughtlessness might result in an accident, properly looked after to make them safe? Don't be complacent; remember the old Quaker farmer. Mr. Secretary, just tell them about that farmer, the one with the wooden leg.

**SECRETARY CRITCHFIELD:** Well, now, Mr. Chairman, that's taking advantage of me. That story is about a fellow over here in Berks county.

**MR. JACKSON:** That fellow that was so good-natured and thought everything was right.

**SECRETARY CRITCHFIELD:** This man had a beautiful crop of wheat growing. It was remarked all through the community that it was the best crop of wheat to be found anywhere within ten miles. Just about the time that wheat was in blossom, there came a severe hailstorm and knocked it into the ground. One of his neighbors

came along and said: "Hans, this is certainly very bad, very bad that you should have lost your fine crop of wheat." "Oh, no, that was just right, you see I had a double crop on that field last year and a crop like that this year was more than the ground ought to be expected to do. The Lord knew better than I did, and so He sent the hail and knocked it into the ground, just where it ought to be." The man went on, but he got no comfort out of that view. A little while later that farmer's house burned down and a neighbor met him and said: "I heard your house burned down, that's very bad." "Oh, no," he replied, "that's just right; Betsy and I have lived in that house ever since we've been married, and here we've raised our family and they have gone and we have a good bank account and we were thinking of building a new house, and now that the old house is gone, all we've got to do is to build a new house; that was just right." Then he got on the mowing machine and the cutter bar struck some obstruction and threw him down in front of the bar and one of his feet was so badly mangled that it was necessary to amputate it, and he went to the hospital and stayed there for a long while, and some time in the winter his neighbor saw him and said: "Hans, now I guess you've found out something can happen to a fellow." "Oh, yes," he replied, "but that was just right; I always had some trouble with my feet and I would come into the kitchen and have to stick one foot in the stove oven and then the other, and now this is a cork foot and I only have to stick one in the oven."

**MR. JACKSON:** I wanted the Secretary to relate that to show that it was not wise to be complacent and let conditions on the farm stand when we might fix them. We are complacent, not fearing danger, and yet these things should be corrected, it means an enormous economic loss in the year, when you come to add it all together. My own experience as a young man who was brought up largely on a farm is, that these dangerous spots are not by any means properly protected, nor have I observed in my later years, in visiting farms, that any great improvement in this regard has taken place. If we add together all of the cases, annually, of accidents which occur on the farms which might have been avoided, the sum total for the Commonwealth of Pennsylvania would be very large and would represent not only a great amount of suffering, but a large economic loss through the waste of time involved in recovering or the waste of labor involved in the loss of life.

I therefore wonder whether it might be well for the Department of Labor and Industry to call upon you to appoint a committee to confer with some of our force, with possibly the addition of an expert or two from State College, to study the machinery and conditions on the farm with reference to the safety of those employed thereon. It strikes me that by doing so, it might be possible for such a committee to obtain results which, if published to the farmers of the country, would result in a great lessening of the present unsanitary conditions. You may well smile at my seriously suggesting this project, but, nevertheless, statistics, so far as they can be found, will show it to be worthy of your consideration. It might also be worth your while at the same time to have this same committee in connection with representatives of insurance companies, test the

best methods by which the farmer can protect his property from loss by fire, which is, as we know, not an insignificant waste.

The Department is now co-operating with the Department of Agriculture in gathering statistics having to do with the grain production of the State, our part being more particularly their manufacture into flour. You know and I know that the milling industry in Pennsylvania has gradually deteriorated and gone down, until today it is a small fraction of what it was compared to a number of years ago. Undoubtedly that should not be the case, and it is our duty to try to find out the reason and to find out how that industry can be renewed to the advantage of the farmers of the State and to those that are in the milling industry. The laws of Pennsylvania require all employers of labor, without reference to the characteristics of their business, to report accidents to the Department of Labor and Industry. We have received few such reports from the farmers and would find difficulty in collecting such statistics without present force. I believe, however, that such statistics should be gathered in order that the truth of the statement I have made above may be firmly established and it will be my hope to endeavor to arrange a method whereby such statistics can be gathered in the future. By means of these accident reports, of which possibly one to two hundred thousand will be received by us during the year 1914, we can lessen the number by improving the dangerous places. Just think, it will be nearer two hundred thousand serious accidents, requiring a lay-off of a few days, or more than one hundred, so far as our present reports indicate. Thus, for instance, if one establishment has fifty accidents during the year and another has two, our Department will make a study of the two establishments and recommend to the one having the great loss the methods by which the other one avoided the danger.

No greater work for helping the prosperity and happiness of Pennsylvania seems to me to be available. The State College is co-operating to educate the people along the lines of safety first. The Department of Labor and Industry is required to see that the labor laws are properly obeyed. We are carrying on more or less educational work. It is of an informal nature and we are making use of our State College as a co-operating hand in that work very much as the Agricultural Department is.

Now, the labor laws have certain radical features, such as this: No child under fourteen may be employed continuously or in industrial establishments, nor may children between the ages of fourteen and sixteen be employed unless they have certificates from the educational authorities, indicating that they are capable of reading and writing. Furthermore, no child under eighteen who is not physically competent shall be permitted to work for a wage. There are many dangerous industries where boys under eighteen may not work. No woman under twenty-one years of age is permitted to work after 9 P. M., nor any woman in a manufacturing establishment after 10 P. M. The morning hours for starting are not earlier than 6 A. M. for women under twenty-one and boys under sixteen, except in special cases. With fifty inspectors and a total force of seventy people in a population of nearly eight million, what are we to do in enforcing all these laws and doing all the other things I have been

telling you about and a great many more I cannot touch upon in this short talk? We can do an enormous work by having the help of all of you and all right-minded people and by having your confidence. These labor laws, however, have not been so construed as to apply to the farming industry, and therefore I bring some of their principal points to your attention purely because you are citizens of Pennsylvania who are particularly capable of appreciating the necessity of guarding our youth from being stunted and weakened for their future life's work and in preventing our women from being so injured as to be incapable of bringing forth a stronger and healthy future generation. Probably no activity is more desirable than this or will do more toward making the people of Pennsylvania healthy and strong and capable, and I have taken more time than I should, because the object of this movement is to protect you while in the state of puberty and the young woman whose body is developing the capacity to be a mother. My paper was just twenty minutes, but I have interlarded things and drawn it out and am deserving of censure.

In closing, let me say that it is of some general interest to know that this Department, in its six months of life, has installed many tens of thousands of guards upon dangerous machines throughout Pennsylvania; several hundred toilets have been installed where sanitary conditions required; hundreds of children illegally employed have been discharged and several scores of employes have been successfully prosecuted for breaking the labor laws and the safety laws. A very large amount of information has been disseminated among the industrial people of the State, which should be a material influence in enabling them to reduce our present enormous waste of human life, health and property to much lower figures, and many other activities have been vigorously undertaken. We ask your co-operation, just as I presume every representative of the other State Departments did, and the only other thing we ask is that if any one of you doubts the great work that is being carried on under this roof and if any one therefore does not feel like helping it, let him come and visit and look for himself, and after he has found out, get behind these little bits of picayune forces and help to make them mighty forces of good in the Commonwealth.

MR. HUTCHISON: I would like to ask the Dean a question: Does this law give you power to visit the shacks, the miserable housing of the laboring people of the mines where they are employed by the corporations, that tonight are sleeping in places where you wouldn't keep your animals? Can you do anything to help those people under this law, in their housing and sanitary conditions?

MR. JACKSON: I will answer Mr. Hutchison in this way, that the law under which the Department is operating does give comparatively little power in that direction; but the Department of Health has full power, and the power that the Department of Health has, combined with the power that we have, I believe entirely covers the project. There is a great deal of activity today to remove the really terrible conditions in which many of our laboring population, especially the Italians, find themselves or by which they are sur-

rounded. I believe that it will not be long before material improvement is made in all the bad spots of the State.

MR. HUTCHISON: That answers it.

SECRETARY CRITCHFIELD: A condition exists in our Commonwealth, that almost makes us blush with shame, to see the women that labor and do the cooking and maintain those homes and men who live in mansions deriving the benefit of their toil and do not seem to move their hands to help house them in any condition. There's only a few places or spots in this Commonwealth where you will see them properly housed. These men have souls, these women are just as other people, after they are here a while under our flag, but how can we expect citizens to be made out of people when corporations, large firms, will house them in shacks of this kind in zero weather? If there is any power of the law in any of these departments, I pray that it may be extended to those poor people in their unfortunate condition.

MR. J. ALDUS HERR: In reference to what you were saying of accidents on the farm that the employer is responsible for—I had a man and two days ago I sent him with my team to the mill. He hitched up a horse that he hadn't any business to put in the near side—he had been told to put him on the other side—and he ran away and the man was hurt; am I responsible for that?

MR. JACKSON: I would be very glad if the Chairman would call on the Attorney General to come down and give you an answer in that case; it's too much for me.

MR. J. ALDUS HERR: It has been spoken about in our county. Most of the farmers in our community are against it.

MR. JACKSON: Against the Compensation Law?

MR. J. ALDUS HERR: Yes, sir, I will be frank with you, just for that reason, that we don't know where to discriminate, and most of the accidents that do occur are caused by the carelessness of the person who is working around.

MR. JACKSON: Let me just say something to you gentlemen. It may be that a compensation law is not the right thing for the rural districts, I won't say that it is, but I do want to say to you men that a compensation law for the manufacturing industries and the transportation industries—the railroads I speak of—and industries of that class, is the only kind of humanity which you or I or anybody in this State should stand for. If it is not right for the farmers, have the proper exemptions made in the proper way, under the advice of the Attorney General, but do not do the State the enormous injury of preventing compensation for accidents in the other industries. I have no personal interest in this, gentlemen, absolutely none, you know, unless I get hurt, and then the State, I suppose, will have to pay me, if it's a good law, but it is my conscientious and firm belief, and I have made a good deal of a study of that particular subject.

MR. STEVENS: Why does that apply advantageously to a manufacturing concern and not to the farmer?

MR. JACKSON: You gentlemen of the farms have a reputation for asking the most—I was going to say impertinent questions that can be conjured up. Again I call upon you to have the farmer answer, why, if it is good for the railroad, is it not good for the farm?

MR. STEVENS: Just a moment; let me hold you to your original statement. You made the statement that it was an absolutely just act insofar as it applied to manufacturing industries and railroads.

MR. JACKSON: Did I use the word "just?"

MR. STEVENS: You used words to that effect; you are not certain when it's applied to the farmer; now let me ask you why?

MR. STEVENS: I would like to have an answer.

SECRETARY CRITCHFIELD: It seems to me that is not a very hard question. There is a great deal more care involved in keeping machinery in proper condition so that those operating it shall not be hurt, than in keeping a team of horses in proper condition,—I have no experience with mules. If I employ a man on my farm and set him to work with a team that is vicious and bad, I know that if I don't warn him and tell him how he can handle that team, that I ought to pay for any injury that comes to him from that team; but on the other hand, if I put in his hands a team of horses, one of them accustomed to work on the near side and the other on the off side, and he gets them hitched wrong and puts the one that has been worked with a single line on the off side and I have told him how that team is to be worked, I ought not to pay him for any injury that is sustained.

MR. STEVENS: Under exactly the same conditions, why ought a manufacturer to pay?

SECRETARY CRITCHFIELD: Manufacturers don't run their machines with horses.

MR. STEVENS: They do quite often.

SECRETARY CRITCHFIELD: But in the operation of their works, they get power of another kind, it is not horse power. Their machines are run by steam and by water and they must be safeguarded.

MR. STEVENS: But they do use horses.

SECRETARY CRITCHFIELD: Oh, yes.

MR. STEVENS: And if a man was hurt, they would be liable just the same as the farmer.

SECRETARY CRITCHFIELD: I doubt very much whether our courts will ever sustain a law that will make a man liable for an accident that occurs when the party who sustains the injury is himself to blame and has been guilty of negligence.

MR. JACKSON: I will have to say this: I don't want to be quoted by the gentlemen over at the table as in any way saying

there is a distinction. I said, if you as farmers feel that it does not apply, that is, the Compensation Law, as a just measure, to you, don't put yourselves in the way of preventing a proper, humane compensation law. I said "humane"; I didn't use the word this gentleman accused me of using; don't put yourselves in the way of such a law in the matter of industries employing large numbers of men under the same rule.

**SECRETARY CRITCHFIELD:** Here is the trouble; whenever we pass a law that will make provisions for one class that are not made for the other class, then we are guilty of discrimination and the law becomes inoperative under our Constitution.

**MR. LOHR:** May I have a word in regard to this matter? I have given some time and attention during this last year to a careful study of the Employers' Liability Act. Being a farmer myself, I can see how it can work a great hardship to the farmer and be of considerable benefit to the manufacturing class of people. There is a vast difference, as I understand it, between the farmer and the manufacturer, when it comes to the operation of the Employers' Liability Act. In the first place, the farmer has a capital that is much less, to begin with, than the capital of the manufacturer. If an employee of the manufacturer were injured at some time during his term of employment, that would not amount to very much in the financial affairs of the employer; but if one employee of a farmer were to be injured or killed, that would seriously affect his working capital; so I can readily see that there is a vast difference. Now I understand how a railroad company can have no better plan of settling their cases than by the proper operation of an Employers' Liability Act, because the employees, when they are injured or if they are killed, their families often go into court and when these cases are carried to court, great sums are frequently allowed, while, if the Employers' Liability Act were in force, the amount is specified in that Act and a settlement can be quickly made.

On the other hand, as I said before, the farmer is in entirely different circumstances; his capital is limited and right here is the other distinction; in many cases, the farmer works side by side with his employee, is subject to the same risks and the same dangers, and for that reason it is not fair to have the one partly insured, while the other is not insured. If I go out with my employee to labor in the fields, subject to the same risk he is, if anything should occur that we should both be killed or injured, according to the Employers' Liability Act, which was introduced in the last Legislature, of which I was a member, and to which act I paid particular attention, if, as I say, both should be killed, the likelihood is that the property of the farmer would be taken to pay the liability; in other words, the widow of the employee would step into the place of the widow of the employer, and the result would be that the conditions of those families would just change places; there's no insurance for the farmer, there's no means by which he can recover, his limited capital is all taken to pay the damages caused by the accident in which he ran the same risk as his employee did, so I can see that there is a great difference between the workings of this act when put to the practical application on the farm or in the factory.

MR. STEVENS: May I ask one more question, please? I am not here to criticise anything, I have no idea to criticise, but I just want to ask a question. There are a great many farmers in the State of Pennsylvania whose total capital far exceeds that of many manufacturing concern of equal capital; why should the manufacturing concern be obliged to submit to the rulings of this law and the farmer not?

MR. LOHR: I am speaking of the average capital of the farmer in comparison with the average capital of the manufacturing concern. Now, I will admit that there are many manufacturing concerns that have a capital that is probably less than that of many farmers, but the gentleman has not overcome the other arguments that I was speaking of, where the farmer assumes the same risk as the employee, employer and employee assume the same risk and work side by side. He has not answered that particular question. I understand, of course, that if this law is ever put into effect, that we farmers will be put under the same obligations as the manufacturers are, because if we were not, it would be class legislation, and class legislation is prohibited by the Constitution, so that in the near future we can all expect this, and I think probably by the next Legislature an Employers' Liability Act will be written upon the statute books of this Commonwealth, and you and I and all of us who employ men will be bound by the provisions of that act. I expect to see that.

Now, in order to protect ourselves against that, it will be necessary for us to work out some system of insurance, so that we will be able to meet this demand if it should come upon us, if we should have bad luck, as I might say, with our employees, so that we will not be bankrupt. There are many farmers in Pennsylvania whose capital does not exceed the value placed upon the life of one single employee. A man going out and buying a farm, having a capital of two or three thousand dollars, if he hires a man to help him, we will say, cut logs to build a house on that farm, he goes out into the woods with him, and by some accident a tree falls on the laborer and on the employer both and they are both killed, as I said before, what would be the result? The employer's two thousand dollars would go to the widow of the employee, and the same thing would be the case in the case of a manufacturer, as this gentleman says, there can be no discrimination along that line, yet, as a rule, the farmer has a smaller capital to begin with than the manufacturer.

MR. JACKSON: Wouldn't he pay a very much smaller insurance because he has fewer employees?

MR. LOHR: I think that is the only proper solution, and we farmers must expect, if this bill becomes a law, we must expect to insure our help if we mean to be on the safe side.

MR. McCASKEY: May I offer a tribute to this Board? I am from Lancaster county and I would like to offer it as a Granger from that county. This meeting has been an eye-opener for me. I had no conception of the importance of the work this Board was doing, and when I came up this morning it was just through the courtesy

of your Secretary, merely to offer Lancaster county's simple remedy, which the Governor asked for yesterday, and we folks in Lancaster read the newspapers, and this morning, as one of the representatives of Lancaster county, I came up here to offer our remedy and had intended to go back immediately after that short talk, but this meeting has so interested me and has opened my eyes to such an extent that I would like to make this tribute. I think it is a wonderful thing. Why, to just get the scope of what Mr. Martin has spoken about the institutes; on less than three hundred thousand dollars, we have taught 2,500,000 farmers in the State of Pennsylvania. I had no idea we had such a proposition in the State, and yet I have been living here for quite a while, and to have a lady like Mrs. Foulke get up and tell us about the practical, scientific end of housekeeping and how to look after drainage on the farm, and about efforts to get running water and bathtubs and get a little heating plant in the farm house, so that you don't freeze at night—those are things I don't believe the average Pennsylvanian knows about at all, and to hear Prof. Surface make the announcement that tomorrow morning anybody can go and look through the microscope and find out all about the scales and what not—why, we think we are up and doing down in Lancaster and I guess most of them are except myself, and I'm sure I was a back number.

**SECRETARY CRITCHFIELD:** Well, Mr. Herr is up and doing.

**MR. McCASKEY:** Yes, siree. There's just one thing I think that series of resolutions today was just a little bit weak, and I would feel that it has not quite accomplished our purpose if we just let them go through as they are. I believe that because our agricultural bureau, the Department here, has gone out and reached out to aid the farmer through the means of these farming institutes and through Mrs. Foulke and the various other departments and bureaus, and as Prof. Surface's Department has done likewise, the farmer gets to trust you people. Now, the farmers will not trust the Highway people; we might as well call this thing right down on dead rock bottom; a spade is a spade; the farmers fought this road bond issue because they didn't like the idea of the Highway Department getting away with the money.

Now, we don't want to get a misconception of this proposition, but down in my own township, out of 270 votes, there were 14 for the bond issue and 256 against the bond issue. Now, practically the same relative proportion existed in Lancaster county. We are not sore down there, but we just feel that the Highway Department has not come out and opened up their hearts to us and said, "Gentlemen, here we are, we are willing to cut out having a road convention in a nice, warm court house, in a dry place when it's raining outside, and the farmers are trying to buck through a lot of seepy spots where their horses are up to their knees, and we are willing to come down to you in the biggest rainstorm you have and have our highway engineers, etc., get out on your road, put their gum boots on, if necessary, put overalls on, and show you in a practical way. We will have our road convention on the worst road you will put us up against." If the State Highway Department would do that, gracious alive, our farmers would welcome them to their arms just as they

have Prof. Martin's Institute Bureau, and I would like, here, on my own responsibility, to have everybody who favors anything that I suggested this morning, relative to our State Highway Department Bureau going out to the townships and holding these conventions in a practical way and adopting a one-mile section of roadway to be dragged by a patrolman in each of our 67 counties. It can be done under the present existing laws and it won't cost a cent, it won't cost anything to make friends if you go about it right, and that's all we need; the State of Pennsylvania is not on friendly terms with our Highway Department. If there's anybody in this audience who feels that that suggestion I made this morning is good and sound and ought to be put across by this State Agricultural Board, I would like them to raise their hands. I, for one, believe in it. Will anybody else back me up? Put your hands up high, gentlemen and lady; am I in the majority or the minority? Come out; don't hesitate. I believe you want to get good roads. I would like to know whether it is the consensus of opinion of this organization to favor that idea or not?

MR. BLYHOLDER: What are we voting on?

SECRETARY CRITCHFIELD: Mr. Chairman, I don't think it is proper for us to take a vote when there is no question before the house. I hope the gentleman will not press that matter.

MR. BLYHOLDER: I would like to announce now to the members of the Board that if they have any resolutions, anything whatever to offer to the Legislative Committee, I hope they will do it very shortly. We have received nothing at all yet. The committee which existed during the last year have just gone out of office and I don't know whether you expect a report from the new committee or not. If you do, pass your wants to the committee at once, this evening. We are right here now at this end of the hall.

THE CHAIRMAN: Is the Memorial Committee ready to report?

MR. JOEL A. HERR: I guess so. We have made inquiry as to the mortality among members of the Board during the past year and have learned of but one death, the Hon. William B. Powell, of Shadeland; the older members of the Board will remember him. We have drawn up the following resolution:

#### REPORT OF MEMORIAL COMMITTEE

*Whereas,* We have learned with deep regret that during the past year death has removed from among us an ex-member of this Board in the person of Wm. Beatty Powell, of Shadeland, Crawford county, Pa., we beg leave to offer the following testimonial to his memory:

Wm. B. Powell was a native of Crawford county, Pa., born in 1839, and lived all his life in that county. He died March 30, 1913, in his 74th year. He early in life began the business of farming, specializing in stock raising. He was a member of the firm of Powell Bros., perhaps the foremost and most extensive stock breeders in this State. Mr. Powell was a man of fine scholarly at-

tainments, a fluent speaker, a poet, an inventor, and a dignified, refined and noble specimen of American manhood. He was a man of great social qualities, as was shown by his large list of personal friends. He was a student of nature and was constantly developing something new and useful. He was honorable, upright and progressive in his work, a prince of good fellows socially and of the highest character. He became a member of this Board in 1887 by appointment of the Governor and served four terms of three years each. The records of the Board are an enduring monument to his memory.

We hereby resolve that we lament his death, will revere his memory and emulate his good deeds.

*Resolved*, That a copy of these testimonials be sent to his friends; also a copy be inscribed in the minutes of this Board.

MATTHEW RODGERS,  
J. A. HERR,

Committee.

SECRETARY CRITCHFIELD: I rise to second the resolution, and in doing so I want to bear testimony to the truth of every utterance that is contained in this memorial address and resolution. Mr. Powell was a gentleman in his instincts and manners. A truer friend to those with whom he was associated. I think I never had the privilege of knowing, and one of the special things for which I admired Mr. Powell was the tenderness that he always manifested in speaking of his aged mother, who shared his home with him while she lived, during the entire period of her widowhood. I heartily second the resolution, therefore, and the remarks that are associated with it.

The CHAIRMAN: Does any other member of the Board wish to make any remarks?

MR. HUTCHISON: I came upon the Board some twenty years ago—it seems but a short time. Among the distinguished men, the men who were leading the thought of this State in agriculture, especially along the line of breeding fine stock and selling it to our farmers, was Mr. Powell. What a magnificent looking man he was. I can see his face tonight, those fine, flowing whiskers, his Chesterfield look, and how he would clasp us by the hand and have a kind word to say on all occasions, and when the good Governor would invite us down to the mansion and Mr. Powell would appear in evening dress, oh how he delighted to be with people, associate with them. He seemed to be the center of society, seemed to be the center of cheer of our people, and it is sad tonight to think that he has been called away. I heard men testify to his hospitality in his home, men in the common walks of life who would go there to look for stock, how he would meet them at the depot with his fine turnout, take them all over his grounds, show them the fine stock and treat them just as kind as he could, whether they bought stock or did not. That was the reputation he had up in Crawford county, that was the reputation he had all over the country. But time goes on and

we have to record tonight that he is departed. We believe that he is in a country where he is united with his friends, and those he associated with her on this Board, in this State, are glad to second this resolution and hope that some heart may be cheered by the words that we have spoken here tonight in remembrance of our good brother.

On motion of Mr. Fenstermaker, the resolution was then adopted by a rising vote, after which the Board adjourned until January 30, 9.30 A. M.

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January 30, 1914, 9.30 A. M.

Vice-President George in the Chair.

The CHAIRMAN: The meeting will please come to order. The first thing on the program this morning is the report of the Specialist on Forests and Forestry, Mr. George H. Wirt, of the Department of Forestry.

MR. WIRT: Mr. Chairman and Gentlemen: Just the other day, a person who has been interested in forestry work for years and years, in talking with some of our foresters, spoke of some of the fires he had had in his forest, and there's a man who understood the value of forests and the destruction wrought by forest fires, yet the remark he made with reference to them was, "My, they must have been beautiful." Now, if we may expect such a statement from a man who has been interested in forestry work from a propaganda standpoint, we can hardly expect anything else from people who have not made a specific study of the subject, and yet that is just the sentiment we find all over the State. They never stop to think of the possibility of loss of life, directly or indirectly, which may result from that small forest fire, not to say anything of the untold loss in dollars that will result.

Mr. Wirt then presented the following report:

#### REPORT ON THE ACTIVITIES OF THE DEPARTMENT OF FORESTRY FOR 1913

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By GEORGE H. WIRT, *Harrisburg, Pa.*

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The work of the Department of Forestry is developed along two lines, viz., that in relation to the management of the State Forest holdings and that in relation to the forests of the State at large.

During the year 1913 there were added to the State Forests 11,776 acres, bringing the total acreage in possession of the State, on January 1, 1914, up to 991,872 acres. There are under contract for purchase a sufficient number of acres to bring this total to something over one million acres.

There are now in the employ of the State under the direction of the Department of Forestry, 56 trained foresters, who are endeavoring to protect, manage, and develop this vast extent of forest land. In addition to the foresters, there are in the employ of the State 90 rangers, whose principal duties are to aid the directors in protective measures and help in the development of roads, in planting operations and general improvement schemes.

During 1913 there were 1,700 miles of roads, trails, and fire lanes worked upon within the State Forests. One hundred miles of telephone line were built by the Department to aid principally in the protection of forests from fire, and at the same time to facilitate the general business of the foresters. Fifteen observation towers were newly established, and with what have already been in use in past years, the State Forests are gradually becoming well dotted with observation towers, from which rangers may quickly detect forest fires. By means of rapid communication with headquarters it is now possible to get men on the ground and extinguish the fires before they reach large size. Every one of these stations ought to be connected with headquarters by a telephone line and to have other necessary equipment. There is a great deal of work along this line which is still to be done, both on the State Forests and upon the forests at large within the State.

Notwithstanding the fact that the spring of 1913 was an unusually bad season for forest fires, the foresters report having had 150 fires, burning over an average of only 52,000 acres, which makes a very low percentage for the region covered, but which is still too high. For it must be understood that the foresters observe and extinguish fires on thousands of acres adjoining State Forests. The above statement does not include the number of fires which occurred outside of State land.

As another phase of the protective measures, and at the same time to properly utilize and develop the State Forests the foresters have carried on what is known as improvement outings; that is, where it has been possible to find a market for certain defective material it has been removed. As a direct result of the sale of such material, including also the returns from certain minerals which have been sold from the State Forests, the Department has turned into the State Treasury during 1913, \$13,101, making the total receipts from State Forests up to January 1, 1914, over \$76,000. In several instances the receipts from this year's improvement cuttings on a per acre basis, have netted the State more than was paid for the land and timber when they came into the possession of the State.

It is well to call attention to the fact that 80 per cent. of the receipts from State Forests are placed in the Pennsylvania school fund, and as such are devoted to the educational activities of the State.

Owing to the fact that there are still some people who do not understand the idea of the preservation of forests and the purposes for which the State Forests were obtained, I desire to go more into detail upon his proposition. A recent statement made by a judge on his bench brings forcibly to our attention the fact that even in official circles there is still considerable misunderstanding in this matter.

## THE REMOVAL OF TIMBER FROM STATE FORESTS

Pennsylvania is second to none of the States in her long and consistent legal consideration of the value and importance of trees and forests. William Penn requested that the colonists "leave one acre of trees for every five acres cleared" so that the future timber demands of the colony might be assured. The provincial government recognized its duty to prevent the needless burning of forests because of injury to the soil as well as destruction of the timber and of the infant improvements of the Province. It placed a heavy fine upon offenders, and made them liable to civil suit. The laws of the State government, too, have sought repeatedly to prevent unnecessary forest destruction, and to make more certain a continuous future crop of trees.

Between 1860 and 1880, forestry, a recognized science and a well developed business abroad, was being much discussed in America as something new. As early as 1877 at the first meeting of the Pennsylvania State Board of Agriculture, it was stated that "there can be no doubt that timberlands belonging to a State might be managed with a view of maintaining them for the growth of wood" so as to provide against future wants. At that time there were about 2,340,000 acres of unpatented land within the State. The State Board of Agriculture did great service in keeping the subject of forest protection before the people, and throughout all of its papers and discussions, runs the idea that forest protection is necessary to maintain future demands for wood as well as to continue all the beneficial indirect effects of forests.

In 1886 some of the men and women of Pennsylvania who were studying the subject of forestry organized the Pennsylvania Forestry Association for the purpose of uniting in the work and of spreading the propaganda for "forest preservation" throughout the State.

The ideas which those interested in forestry within the State have understood to be essential, have never been expressed more clearly than as given in the first issue of Forest Leaves, July, 1886.

"Forest Leaves is not intended to represent merely the theory of forestal culture or management; but it is expected to be the organ of an association, the object of which is to collect and distribute information upon practical methods to be pursued, and commercial as well as sanitary results to be obtained by augmenting the proportion of wooded area in the State.

"The prevailing sentiment of those who organized the present movement recognizes that *trees like grain grow for man's benefit, which when ripe should be cut and put to use.* It however condemns the useless destruction of forests with the same emphasis that it would be the waste of growing grain, and would encourage an equal interest in each, believing that a due proportion of forest is as essential to the public weal as a sufficiency of farm land. It does not seek to reduce the amount of tilled land, but is anxious to protect the farms by maintaining a climatic equilibrium which is only possible where forests are retained in proper proportions. *Recognizing the large industrial interests dependent upon the forests of Pennsylvania, it would by reforestation of waste lands and preventing needless destruction, make these industries permanent.*

*"It would while considering the present, look to the future, and, by concert of action, secure legislative enactments to prevent useless waste of our already reduced forests and encourage the propagation of new growths, which, while benefitting the present generation, will maintain Pennsylvania a goodly heritage for those who follow us."*

In the same issue the following statement is found: "Unless tree-planting is implied, there is very little meaning in the phrase, 'Preservation of the forests,' for it is idle to suppose that any considerable portion of our timber will be spared the woodman's axe where the economic wants of the country demand its use. To spare the woods, would be equivalent to applying a brake to the wheels of industry and general progress."

In the issue of April, 1888, it was stated that the Pennsylvania Forestry Association seeks to restrict the abuse, and not to interfere with the proper use, of our forest growth.

The members of the Forestry Association and allied organizations were instrumental in having the Legislature of 1893 pass an act providing for the appointment of a Forestry Commission to study the conditions and needs of the State with reference to its forests. Among other things the act specifies that the Commission shall report "What measures if any are being taken to secure a supply of timber for the future. It shall further be the duty of the said Commission to suggest such measures in this connection as have been found of practical service elsewhere in maintaining a proper timber supply."

"The said Commission shall also ascertain what wild lands, if any, now belong to the Commonwealth, their extent, character, and location, and report the same together with a statement of what part or parts of such lands would be suitable for a State Forest Reserve, and further, should the lands belonging to the Commonwealth be insufficient for such purpose, then to ascertain and report what other suitable lands there may be within the State, their extent, character and value."

There can be no question as to the meaning and the purpose of a State Forest Reserve in the minds of those who first proposed the idea to the Legislature. From statements made upon the floor of the House and recorded in the Legislative Journal, there can be no question as to the understanding of the proposition by the Assembly and, from statements made by the several Governors who supported the movement and signed the bills which relate to State Forest Reserves, it is reasonable to conclude that they, too, had an opinion similar to that held by propagandists and legislators.

This common understanding among the people of Pennsylvania is given by the botanist member of the Forestry Commission of 1893 in his report to the Legislature of 1895 as follows:

"The question is thus narrowed down to one of acquisition of suitable lands, and naturally the first inquiry is, do any such lands exist within the limits of our State? This, of course, depends upon what the prospective functions of the reservations are to be in relation to the State. We should expect them

"First, to be capable of producing some crop which would compensate the State for cost of purchase and of maintenance.

"Second, that they could be kept under such control as would lead to diminishing the frequency and severity of freshets on the one hand, and on the other, that they should aid in maintaining an even flow of water to foster our industries and feed our springs and streams.

"The third purpose given was that they should serve as sanitariums and outing grounds for the people, and the fourth, that they should serve as collecting grounds for water supplies for towns and cities and for the generation of electrical power.

"With this long historical background for the protection of forests "to restore the lumbering industry" it is not surprising to find written into the law of 1901 creating the present Department of Forestry these words: "and whenever it shall appear that the welfare of the Commonwealth, with reference to reforestation and the betterment of State Reservations, will be advanced by selling or disposing of any of the timber on forestry lands, the Commission is hereby empowered to sell such timber on terms most advantageous to the State."

Although the real conservation policy of "wise use" has frequently been attacked in Pennsylvania, and attempts have been made to have natural resources locked up, such an effort has never received support, largely due to the fact that the State Forests have been administered for the benefit of the people and not for any one's personal benefit. Members of all political parties have supported the work of the Department, and what antagonism has arisen has been because of the fact that in certain instances policies were ignored and good business methods followed in the carrying out of Department work.

We have an unfortunate example of natural resources locked up in Forest Preserves in our neighbor State, New York. The work there started right, but, because of mismanagement the people went to the extreme in the wrong direction until it can be said now, that forestry is common in New York everywhere but in the forests. A recent trespass case may be cited as the method in vogue there. A large quantity of timber on State land had been felled by a company operating on an adjoining tract. The trespass was discovered before the logs were removed. The company was fined. The logs are still rotting upon the ground because the State Constitution prohibits the removal of any timber from State Forest Preserves. The State could have sold the logs and received several thousands of dollars of profit from them. Still the people of New York need more timber than they can get at home and have to pay continually increasing prices because of increasing scarcity of the commodity. Thousands of dollars' worth of fire-killed and mature timber is going to waste. Industries need the wood, people need the labor, and the forests, themselves, call for its removal. Pennsylvania does not want her State Forests to be a detriment to her people.

Since 1902 there have been constantly increasing amounts of material removed from our State Forests resulting in immediate financial profit to the Commonwealth and in an improved condition of the forests from which it was taken. The methods of removal have varied somewhat, but in all cases, it has been under the direction of a forester. At first two methods were common. Dead stuff was sold

on the stump; live trees were cut by men employed by the Department and sold to the best advantage. Cordwood, poles, posts and ties were the principal products. Later a saw mill was employed to cut larger trees into lumber, the Department employees felling the trees and cutting them into lengths. Later it was found that where improved cuttings were being made from time to time it was impractical to cut everything into cord wood or to get a saw mill man to contract for cutting a few logs at a time. The Department then purchased for the South Mountain forest a saw mill outfit, including a shingle mill and a lath mill with which a considerable profit has been obtained from the removal of stuff otherwise unprofitable.

As other forests have been developed it has been found that in most cases under present conditions it is the best policy to have the timber removed under contract, the contractor paying for the material at stumpage rates and agreeing to follow certain regulations to cutting and removal. In many cases, however, the trees to be removed are scattered, the quantity to be removed in one place is small and lumbermen do not want to contract for such conditions at reasonable figures. They are not used to such conditions and usually figure the risk, expense, and profit higher than is necessary. Under such conditions it is evident that the work must be done by the Department. The material for manufacture will have to be stored until there is obtained a quantity sufficient to induce a saw mill man to set up his outfit.

At the end of 1913 the Department has received a total of over \$76,000 from the sale of products from State Forests. During 1913 alone over \$13,000 were received. Eighty per cent. of this fund goes to the State School Fund.

The Department of Forestry is bound by precedent, by law, and by common sense, to continue its policy of harvesting dead, defective and mature timber from the State Forests, and in time the revenue from this source will be yielding the Commonwealth a high rate of interests on its investment in forestry. The forests kept well stocked with thrifty trees and well managed for the production of timber to be used will furnish all the other economic uses for which trees or forests might be grown, namely, protection and regulation of water supply, amelioration of moisture and climatic conditions, beneficial effects upon industries, labor and the general welfare of the Commonwealth. All these things will come in addition to the direct financial profit and without any additional investment.

There were planted upon State Forests during 1913 3,000,000 seedlings, bringing the total number planted to date up to 11,000,000, covering an area of 5,500 acres.

From the time of Governor Stone, the idea of making State Forests recreation grounds for the people of the State has received more and more recognition, and in accordance with this idea the policy of the Department has been and always will be to open these reserves for every possible use the people of the State can make of them, as long as such use does not interfere with certain other purposes for which the forests must necessarily be held, viz., the protection of water supply from contamination, and of course, the growing of the forests themselves, which in fact is what brings about all of the economic uses of the forests.

During the year 1913 an effort was made by our foresters to get as many as possible of the school children in their neighborhood out into the forests and give them a day's outing and instruction in nature study. A number of very interesting questions came up in this connection, but we do not have time to deal with them now.

During the year 811 camping permits were issued granting permits to over 4,500 people to stay upon State lands for a period of anywhere from two days to three weeks. In addition to this there were thousands of people who hunted, fished, and spent days of pleasure upon the State Forests of whom we have no definite record.

Owing to the establishment of game refuges on some of our larger forests, the game of the State is increasing. Every year many of the streams within the State land are restocked with trout.

One step in advance with reference to the use of the State Forests has been accomplished by reason of a recent act of the Legislature permitting the Department of Forestry to lease small camp sites for a period not to exceed ten years, to persons who may care to place thereon a more or less permanent shelter. It is to be hoped that as a result of this move the people of the State will begin to appreciate the beauty of her forests and streams bo' th in summer and in winter, and in time Pennsylvania mountains will be as famous for their scenery and for the pleasure which can be obtained in them, as those of any other State or country.

The work of the Department with the forests of the State at large is now devoted principally to two main propositions, viz., their protection from fire and the matter of assistance to private individuals in caring for their woodland. The forest fire problem is not yet being solved satisfactorily in this State because of the fact that the people of the State themselves do not as yet co-operate heartily with the Department. The problem cannot be solved by the forest land owners themselves nor by the State itself, but only by a satisfactory co-operation between them. We shall always have forest fires; but when a systematic effort is made to detect and stop the fires before they reach great size, then we may be assured of reasonable protection. A number of people try to blame the forest fire problem upon the railroads. We find that the largest number of forest fires are directly attributable to carelessness of all classes of people, and the large fires are almost entirely due to a matter of indifference. Timberland owners do not realize the value of their timber, especially if it happens to be young growth, and very few people realize the damage that is done by forest fires.

In the recent Legislature, a bill was introduced providing for satisfactory co-operation between the Department of Forestry and private timber owners, provided the owners themselves would form an organization and take some steps to protect their own property. The idea was that when such organizations were completed, the Department of Forestry should detail for such organizations certain patrolmen, and expend for patrol purposes an amount of money equal to the amount of money which would be raised by the organization itself for all other protective purposes. There are certain things which the State apparently dare not do with its money, as for example, open up roads and trails upon private lands, extend telephone systems, establish lookout towers, print and distribute circu-

lars and posters to a sufficient extent to flood each community with facts relative to the subject of forest fires. All of these things a local protective association might do. If their efforts can be supplemented by patrolmen, the forest fire problem would be almost solved. Unfortunately, the legislators could not see things this way and passed the bill simply allowing the Department to expend for patrol purposes an amount of money equal to that amount raised by the association for the same purpose. The result is that the co-operation supplement is not as satisfactory to private timber owners as the old fire warden law.

In this connection it may be well to state, that the Legislature of Pennsylvania appropriates \$25,000 a year for the protection of at least eight million acres of forest land, which at a minimum value for the present merchantable timber standing thereon is worth 150 million dollars. Is it any wonder that the Department of Forestry cannot assure the people of the State a better insurance against fire loss?

The Department of Forestry has extended during the past year its efforts in the matter of assistance to private individuals. All of its foresters are at their service when the work upon the State Forests does not demand their immediate attention. The Forest Inspector made only 21 inspections during the year; but it is a notorious fact that notwithstanding the fact that the farmers and timberland owners know that the Department of Forestry is at their service, comparatively few have called for assistance.

During the year approximately 50,000 seedlings were distributed to private individuals from State nurseries simply for the cost of raising the seedlings, and in most instances supervision is furnished during the planting operations.

The most important step dealing with the forests at large which has been taken during the year and during recent times, was the passage of what are known as the auxilliary forest preserve acts by the last Legislature. Under the old general property acts the forests of an individual have been taxed in a manner which practically amounts to their confiscation by the township. The result has been in many cases that where the owner has stopped long enough to think about his forest land from a financial standpoint, the forests have been removed, and until the last few years millions of acres of forest land have been available at tax sales because the owners did not care to pay taxes upon them after the best growth had been removed. By reason of the recent acts young timber land and waste land which will be planted to forest trees may be placed into the auxilliary forest reserve class, and once in this class by order of the Department of Forestry, the assessment must be reduced to not more than \$1.00 an acre. For all such lands the State pays to the townships four cents (4c) an acre, which in the majority of cases will give the township an amount of money sufficient to carry on their operations until the timber upon the land is ready for cutting. At that time the owner will pay to the county one-tenth of the stumpage value of the material removed. The proposition is simply this: During the time that the timber is growing the timber owner, which means every farmer who has a woodlot from a half acre in extent to any number of acres, may pay a low tax. When it is cut

and he receives a financial return, he is then able to pay easily the deferred tax. It remains to be seen how the farmers of the State will take advantage of these acts.

Another important step which will be of advantage to woodland owners of the State, was another act of the last Legislature permitting the appointment of district foresters. Such foresters are to be appointed by the Commissioner of Forestry when the demands for assistance from the county or the necessity of forestry work in the county demands his appointment. The duties of this district forester will be to superintend the activities of the local fire wardens, to see that they are properly distributed and perform their duties rightly; to be of assistance to all the farmers of the county in the matter of advising them and helping them in the planting of waste land to forest trees and the proper care of their wood lots and forests; and at the same time to do whatever can be done to educate the people of the country to the importance of forests and their care. In other words, the district forester will be to the farmers in respect to their forests just what the local county farm expert now is with reference to agricultural crops.

I would say that upon the desk you will find copies of those auxiliary forest reserve laws, together with some circulars dealing with them and some blank applications, in case any of you want to take them along and consider them and make application to the Department for having your land placed in that class.

**The CHAIRMAN:** This report is ordered filed with the proceedings of the meeting. The next is an address from the Attorney General's Department, "The Farmer and Legislation," by Hon. Wm. M. Hargest.

**MR. HARGEST:** Mr. Chairman and Members of the State Board of Agriculture: After you have listened intently for two days to a discussion of the various phases of governmental endeavor of this Commonwealth, I am rather fearful of the task imposed upon me to interest you at this time; for while the real lawyer loves the law and its discussion, yet it is sometimes difficult to awaken that admiration in the layman.

Mr. Hargest then presented the following paper:

### THE FARMER AND LEGISLATION

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By HON. W. M. HARGEST, *Harrisburg, Pa.*

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I have been requested to address this body upon the subject of "The Farmer and Legislation." It is a subject too comprehensive to be adequately treated within the confines of a single address, for from the very earliest ages agriculture has been the subject of legislation, and when it is remembered that all sustenance comes from the soil, we need no other explanation of the fact that the laws, at least, of the Anglo-Saxon people, have provided for the protection of the farmer, and the development of his industry.

Investigation shows that many of the same problems which demand the attention of the farmer today have disturbed him for centuries, and if you are as entertained by a brief reference to some of the interesting circumstances, disclosed in the laws relating to farming as I have been in investigating the subject, this address will, perhaps, not be in vain.

I find that as early as the year 1488, there was a statute passed, in England, which complained that the farmers have allowed their farms and houses to become out of repair, and required that all houses let for farms should be kept up or a forfeiture of one-half of the profits should go to the King.

In these days of discussion, agitation, and legislation against trusts, it is interesting to note, that as early as 1534 there was an anti-trust act passed in England, for the protection of the farmer of modest means, and it was not only an anti-trust law, but it complained of the high cost of living. It said:

“Some farmers have 24,000 sheep; some 20,000; some 6,000; some 4,000 and some more or less, and yet the price of wool has nearly doubled, and sheep had come into a few persons' hands.”

And in order to prevent the high cost of living, another statute was passed as early as 1597, in England, which provided that land which had been made arable should not be again converted into pasture.

As early as the year 1552, perhaps the first English statute against forestalling was passed. It forbade the coming of any person to market to bargain for the buying or selling of any merchandise or victuals, “unless the same be in the market ready to be sold or purchased,” and it forbade the dissuasion of any person coming to market or bringing anything to market. It prohibited a person from selling what he had bought in the market within four miles of the same market. It prohibited the selling of cattle within five weeks after they had been bought, and had other similar provisions intending to prevent what was called forestalling and regrating.

Forestalling was the subject of a statute of the Province of Pennsylvania as early as January 2, 1778 (IX Stat. at large 177), which was entitled, “An act to prevent forestalling and regrating, and to encourage fair dealing.”

During the sixteenth century and just before the settlement of the American colonies, there were laws in England enacted against tramps and vagabonds, regulating the wages of labor, the prices of provisions, and relating to the exportation and importation of corn. In the year 1662 there was passed the first statute, in England, providing for the levying of tolls on turnpikes.

So that our forefathers, who came to settle and develop the American colonies, came with some knowledge of legislation in the interest of the farmer, and in no colony on American soil was the interest of agriculture more tenderly fostered by legislation than the colony established by William Penn. Legislation looking to the happiness and prosperity of those engaged in agricultural pursuits was soon started.

One of the very first statutes, passed November 27, 1700 (XI Stat. at Large 12), provided for the penalty of imprisonment for life, and the forfeiture of all the offender's estate to the party suffering, for firing or setting fire to a house, outhouse, barn or stable, and providing a year's imprisonment and four fold satisfaction to the sufferer for firing a man's stacks or ricks of corn, hay, wood or fence, and if offender was unable to make satisfaction he or she was to be sold for the benefit of the party suffering.

On the same day, November 27, 1700 (II Stat. at Large, 70), there was passed the first act regulating the maintenance of fences. The salient features of which remain the law today. It provided:

"That all corn fields and grounds kept for inclosures \* \* \* shall be well fenced with fences at least five feet high, of sufficient rail or logs, and close at the bottom, and whosoever not having their grounds inclosed with sufficient fences as aforesaid, shall hurt, kill or do damage to any horse, kine, sheep, hogs, or goats, of any other person, by hunting or driving them out of or from the said grounds, shall be liable to make good all damages sustained thereby to the owner of the said cattle."

This is the first act upon what has since been a fruitful topic of legislation and discussion among farmers.

The second section of this act provides for fence viewers and the payment of help the charges of partition fences. Out of this old act of Assembly originated, what are now well known propositions of fence law, as follows:

An occupant is not bound to join in a division fence, and he may set his fence, if he pleases, not on the line of division but on his own land, in which event, however, he must maintain his own fence. If no fence is erected either party may, at his own discretion, erect a partition fence, and when the charge assessed by the fence viewers is paid such partition fence becomes the common property of both owners.

As late as 1894 it was decided that Section 3 of the fence act of March 11, 1842 was substantially a reenactment of the second section of the old act of 1700, and is not repealed by the Act of April 4, 1889, P. L. 27, so that the law as to partition fences adopted in the Colonial times, in 1700, is practically the law of today.

From this old legislation has grown various other phases of fence law. Punishments have been prescribed for maliciously breaking down fences, wire fences have been legalized as proper line fences, and other things, which cannot be noticed within the limitations of this paper, have been provided for.

There was an Act of March 4, 1763 (VI Stat. at Large 261) "concerning cattle, horses and sheep trespassing within this province," and it provided that any person injured by such trespassing "may seize and restrain such" animals, and may retain the same until he shall recover and receive the damages sustained by such trespassing, together with the costs of advertisement, and reasonable charges for keeping, and this act has been the subject of many subsequent amendments from the time of its passage down to the year 1893.

In the very early days there did not seem to be any positive prohibition against swine running at large, but I find that the Act of January 12, 1705 (II Stat. at Large, 93) prohibits swine running at large within fourteen miles of the river Delaware only when they did not have rings in their noses, or yokes about their necks to prevent rooting, and the act provided that swine without such appurtenances might be killed and carried away, their value appraised, one half of the value to go to the owner of the rooted land, and the other half to the proprietary and governor.

Many Acts of Assembly were passed for the protection of the farmer which authorized them to kill destructive birds and animals. The Act of October 28, 1701 (II Stat. at Large 166) is interesting. It provides:

"It manifestly appears by the innumerable quantities of blackbirds and crows that continually haunt in this province and territories, to the great prejudice, hurt and annoyance of the inhabitants thereof, being destructive to all sorts of corn and grain that is raised therein, so that the people's labor is much destroyed thereby, and that the people may for the future be the better encouraged in their labor and industry, by destroying such birds, thereby to hinder their great increase."

Therefore, all blackbirds are paid for at the rate of "three pence the dozen; and for every crow three pence."

A bounty was provided as early as 1705 (II Stat. at Large, 238) of ten shillings for the killing of any male wolf, and fifteen shillings for female wolf, and this bounty was increased in 1782 (X Stat. at Large, 460) to twenty-five shillings for every grown wolf, and fifteen shillings for every wolf puppy.

One of the matters which a Pennsylvanian may consider with pardonable pride is the fact that the pure food legislation of the state has advanced beyond that of any other state in the Union, and with that legislation the farmer is deeply concerned.

It had a very early beginning. As early as May 12, 1772 (III Stat. at Large, 291) the legislature of the Province of Pennsylvania undertook to regulate the ingredients of ale and beer, but while the statute refers to the unwholesome materials, the regulations were more to promote the business of the farmer than in the interests of purity or for the protection of public health. It recited that:

"It is found by experience that the using of molasses and other materials in brewing ale and beer doth very much hinder the consumption of malt, and so the raising of barley is thereby discouraged."

Therefore, it is enacted that if any brewer or retailer of beer or ale

"Make use of any molasses, coarse sugar, or composition or extract of sugar, honey, foreign grains, Guinea pepper, or other liquor, or syrup, boiled up to the consistency of molasses, or any unwholesome materials whatsoever, in the brewing, making or working of any beer or ale."

or if he should receive or take any of these things into his brew-house he shall forfeit the sum of twenty pounds.

It provides for a penalty against any servant assisting in using such articles.

And this act is also the first act upon the statute books for the licensing of persons authorized to sell intoxicating liquors. It provides that no person "shall be admitted or suffered to keep any common alehouse, inn or tippling house, but such as the justices of the peace of the respective counties ..... shall, in their discretion, judge fit."

And it provides that:

"None shall be so admitted or licensed before they be bound, with one or more sufficient securities, by recognizance to the governor for the time being, in twenty pounds penalty, with condition, as well against using any unlawful games, as for the using and maintaining of good order and rule."

We have apparently gone through quite an evolution upon this subject. This old Act of Assembly seems to have encouraged the making of ale and beer. The laws of the present day are discouraging such manufacturing.

I find that one of the very first tariff laws, at least in force in Pennsylvania, was passed directly in the interest of the farmer.

On March 29, 1788 (XIII Stat. at Large, 57) an act was passed which recited that:

"Considerable quantities of foreign malt not the produce or manufacture of this or any other of the United States have been imported into this State, whereby the price hath been so reduced as greatly to discourage the raising of barley, although the soil and climate of this and the neighboring states are well adapted to the producing thereof, and whereas it is expedient to give all due encouragement and preference to the agriculture and manufacturing of this State."

It was then enacted that:

"There shall be levied, collected and paid to the use of the Commonwealth for every bushel of barley or malt imported into this State not of the growth of the United States, the sum of two shillings and six pence."

Of course no State tariff law could be passed after the adoption of the Constitution of 1789.

I have already referred to the old English statute of 1534 on the high cost of living. This same agitation which we have now concerning the cost of living, and which they seemed to have had in England in 1534, they also had in this province in 1778, for there was passed (IX Stat. at Large 236) "An act for regulating the prices of the several articles herein mentioned for a limited time."

It recites:

"Whereas, certain persons in this State, instigated by the lust of avarice and devoid of every principle of public virtue and humanity are assiduously endeavoring, by every means of oppression, sharping and extortion, to accumulate enormous gain to themselves, to the great distress of private families in general and especially of the poorer and more dependent part of the community as well as to great injury of the public service."

Therefore, for the suppression of such nefarious practice no person "shall ask, demand, receive or take any greater or higher prices for any or either of the articles herein enumerated and mentioned than the several prices herein set down and limited, to wit:

For wheat by the bushel, twelve shillings. Merchantable flour by the hundred, thirty-three shillings. Rye by the bushel, ten shillings. Indian corn by the bushel, seven shillings and six pence. Barley by the bushel, ten shillings. Oats and spelts by the bushel, six shillings. Buckwheat by the bushel, five shillings. Whiskey, full proof, by the gallon, nine shillings. Good cider by the barrel, thirty shillings. Good pork by the pound, from nine pence to a shilling, according to its quality. Beef by the pound, from eight pence to one shilling, according to its quality. Firkin butter, tallow and cheese by the pound, one shilling and three pence. Fresh butter by the pound, two shillings," etc.

Apropos of the high cost of living, and also indicating how close identified the law and the lawyer is with the farmer, I call your attention to the fact that a statute of November 27, 1779 (X Stat. at Large 39) provided that:

"Whereas the fees of the officers of this Commonwealth who are hereafter mentioned as now regulated by law are by the great rise of the prices of the necessities of life, become very inadequate to their expenses whilst they attend the public business."

it is enacted that the fees of said officers shall be estimated and paid according to the price of good merchantable wheat.

Then follows the provision that the judges, prothonotaries, court officers, attorney general, attorneys at law, as well as juries, witnesses and many others connected with the administration of the laws be required to accept their compensation in wheat.

This retrospect of the old laws of the past, while interesting, is only profitable to the extent that it enables us to understand, and to better provide for the future. There are many live problems which affect the farmer of today, and will continue to affect the farmer of tomorrow, which in large measure must be met and solved by legislation.

One of the large questions which has disturbed the farmer for many years, and is at some extent still disturbing him is the trespassing of animals, to which I have referred, and particularly dogs worrying sheep, and it is often the question with the farmer how far he can go without subjecting himself to liability in protecting his sheep.

By the Act of April 14, 1851 (P. L. 1852, page 711) it is provided:

"That it shall be lawful for any person or persons to shoot or kill any dog or dogs found or known to be chasing or worrying sheep, or accustomed to do so within this Commonwealth, without liability on the part of such person to pay any damages therefor."

"That from and after the passage of this act, the owner or owners of any dog or dogs shall be liable for all damages done.....by any and every such dog or dogs.....to be sued for before any court or justice of the peace having jurisdiction of the amount so claimed."

And it has been held that one who shoots a dog, justifying himself under the provisions of this act cannot be convicted of cruelty to animals, and it is not necessary that a dog shall actually be seen worrying sheep. It is enough to see him follow them with hostile interest, and that the owner of the sheep knew of his propensity for worrying sheep.

But the burden of proof is upon the defendant to show that the killing was justified, and the question of whether or not one charged with the killing of the dog was justified therein is always for the jury.

The worrying referred to in this act does not imply biting or tearing with the teeth, for if a dog pursues and barks at sheep it is sufficient to protect the owner of the sheep against any liability for killing.

Pennsylvania has always been in the forefront with legislation in the interest of the farmer. She has early passed laws to prevent deception in sale of butter and cheese, and perhaps the very first statute which protected the farmer against the invasion of oleomargarine was passed by the legislature of Pennsylvania in 1885, and it gave rise to the case of Powell vs. Pennsylvania in the Supreme Court of the United States (127 U. S. 678) which has since become one of the most famous cases in American jurisprudence.

The farmer in Pennsylvania is interested in all phases of the pure food laws, but he is interested in none more than in the act of May 21, 1901, providing for the regulation of the manufacture and sale of vinegar. And this act has been the subject of much discussion, and is now passing through the stages of important litigation.

By the Act of 1897, this State prescribed a standard that vinegar should be of not less than four percent. in acidity, with the result that the farmer who made his vinegar from pure apple cider, and who added no acids sometimes had vinegar which did not reach the test of four per cent., and the merchant was often induced to avoid the cider vinegar made by the farmer for fear it did not comply with the law, but in 1901, in the interest of the farmer alone, the legislature amended the Pennsylvania vinegar law so that it did not provide any test or standard of acidity, and now Pennsylvania permits the farmers to use up their surplus of apples by converting them into cider vinegar, and as long as they make vinegar to which no water, drugs or acids have been added, they come entirely within the protection of the law.

The present litigation over this vinegar statute is a contention that the addition of water to vinegar is not a violation of the law, because the great vinegar interests desire to add water to bring the vinegar to a four per cent. acidity. The contention of the Pure Food Department of this state is that the housewife can add water if the vinegar is too sour. I may remark in passing that Pennsylvania changed its law in 1901 by striking out any standard of acidity wholly in the interest of the farmers, although thirty-three or thirty-four other states of the Union required an acidity test for vinegar.

And well may Pennsylvania consider the farming interests of the State when it is remembered that there are 200,000 apple orchards in this Commonwealth.

If time permitted I might recount other instances where this great Commonwealth has endeavored to throw its protecting arm of legislation around the farmer; how it has provided for investigation, experiment and beneficial treatment in the orchards of the Commonwealth, for the eradication of disease from cattle, trees and shrubs; and in the fertilization of its fields, but time will not permit of any such elaboration.

We have our pure milk laws which provide for the proper output of the products of a million dairy cows.

I do not know of any instances where the farmers of Pennsylvania have come to the legislature with a real and substantial grievance which was not considerably received. Sometimes while we do not get the legislation which the most radical of us think we should have, and sometimes get more than the most conservative of us think there is any occasion for, yet considering the whole matter, the Legislature of Pennsylvania generally, has not overlooked the fact that while this great Commonwealth is rich with minerals, and with manufactories, it, nevertheless, has 218,000 farms, and over 300,000 persons actively engaged in agricultural pursuits, who deserve the best legislation to foster and promote their industry, prosperity and happiness which the very best thought and experience of the times can provide.

**MR. STOUT:** I would like to know how this law about solids in vinegar applies?

**MR. HARGEST:** Solids in vinegar means only the natural solids that appear there from the apple itself; it does not mean the addition, in my opinion, of any other apple solids, even though they may be apple solids which may be put into the vinegar, although taken from some other place.

**MR. STOUT:** The reason I asked the question is this; I had 20 or 25 barrels of vinegar a few years ago and took some of it to a vinegar factory in Philadelphia; some was very acid, but they told me they could not accept that cider vinegar, although it was absolutely pure, because it did not contain the solids required by law.

**MR. HARGEST:** That was before the Act of 1901. That Act took away any standard of acidity or solids. That was while the Act of 1897 was in force, which prescribed not only acidity, but also solids. Since the Act of 1901 was passed, you need not be afraid of

your vinegar, either as to acidity or solids, provided you add nothing to the pure apple cider.

MR. STOUT: Here is another little question: I have adjoining fields; there is a little stream passes through that I have bridged with just a flag laid across to walk across. I find it more congenial to erect a bridge to drive across; is it necessary for me to get permission to erect a bridge on my own property?

MR. HARGEST: What kind of a stream is it?

MR. STOUT: Just a little stream.

MR. HARGEST: I know of no such provision. You are referring to what is declared by the State to be a public navigable highway. That word "navigable" refers to streams that cross the State, and many times streams have been declared navigable which, of course, cannot be navigated by anything, not even a rowboat, in some places, but it is only those streams that would affect the question you ask?

MR. STOUT: I would not want to take the risk of making myself liable to a fine without some knowledge, because I did not know whether I was authorized to construct a private bridge there or not.

MR. HARGEST: I suppose there would be no danger in that.

SECRETARY CRITCHFIELD: I want to say that I saw Mr. Hargest and asked him to talk before the Board of Agriculture and to represent the Attorney General's Department. He said to me, "I don't know of anything I could say to a body of farmers that would be of interest." Oh, what a pleasant thing it is to be surprised. I want to say that, speaking for the Board, we are under an obligation of gratitude to Mr. Hargest for the very important information he has brought to us this morning. And personally, I feel under a very deep debt of gratitude, because what he has said will be published with the proceedings of this meeting and I will be saved the trouble of writing many letters, especially on that fence law question. Oh, if I could have right here before me the pile of letters I have received from farmers all over the State with regard to line fences, asking, "What is the law? We don't understand it," and I have never printed a bulletin or had a bulletin printed on that subject, but now I've got it from headquarters.

Another question that has given us a great deal of trouble in the Department has been the vinegar law. Another pile of letters could be exhibited that have been written to the Department, both the Dairy and Food Commissioner and myself, as to the provisions of that law. Just as was indicated in the paper, men dealing in vinegar, the agents of these manufacturers, will come around and tell the storekeeper and the grocer, "You can't buy that vinegar, you will be in danger of prosecution, it won't meet the requirements of the law." And so there are barrels of vinegar today stored away in the cellars of farmers that have not been put upon the market simply because, like Brother Stout with his bridge, they wanted to be sure they were not transgressing the provisions of the law of the State. We are certainly under very great obligations to Mr. Hargest.

MR. HARGEST: May I say that I think the shoe is entirely on the other foot, and I think the gratitude is mine, because, when our distinguished Secretary of Agriculture came to me, while I don't know what I could say, yet you would be surprised to know how much more I know now than when I first began to examine this subject, and I am very thankful for having had the opportunity to make the examination, and particularly thankful if I have been the means of being of any interest.

MR. HUTCHISON: You referred to the law of 1700, that compelled a man to fence in his cornfield, and then it provides that if he drives out animals and does damage, he could be prosecuted.

MR. HARGEST: No, no, it provides that if he hasn't got that fence and drives out the animals and does them damage, he can be prosecuted.

MR. HUTCHISON: Is that law in force today?

MR. HARGEST: With some modifications, yes. If he hasn't the fence and drives out the animals, he can be prosecuted, but if he has the fence, he can take the animals and hold them.

MR. HUTCHISON: But if his fences are down and the town cows get in his field and he damages any of those cattle, would he be liable?

MR. HARGEST: I am inclined to think so, although that would be only a curbstone opinion.

SECRETARY CRITCHFIELD: Yesterday I got a letter from a farmer in the western part of the State, saying that a dog had killed some of his sheep and he had been advised that he could not kill the dog, even though he saw him in the act of worrying his sheep, because a dog was now recognized as property and a tax was being paid on it. He wanted to know what he could do. Well, I answered and said, "I am not a lawyer, but I think you will be all right if you kill the dog, even though the party may be paying tax for it." Was I right in that?

MR. HARGEST: I think so.

SECRETARY CRITCHFIELD: If this meeting had not been in session, perhaps I would have taken time to look it up, but that is the way I answered.

THE CHAIRMAN: The other two numbers on this morning's program have been heard at other sessions; there is one here that was left over on Wednesday afternoon, the address by the Dairy and Food Commissioner, Hon. James Foust, if the gentleman is present, we can hear that report today.

SECRETARY CRITCHFIELD: When Mr. Foust was called for day before yesterday, I stated that he was tied up in the courts. He came to me this morning and told me there was a meeting of a Board, of which he was ex-officio member, and which will be in session this forenoon, and asked, "What shall I do?" I said, "I don't know but what it is better for you to attend your Board meeting." He said, "I will come here if you say so." I said, "If you will simply

put in my hands a statement along the lines we expected to get information from you in your remarks, so that I may send it out to the members of the Board, I think that will answer the purpose," so he is going to do that after attending to his other duties. We are all very busy here at the Capitol and have to accommodate each other. If it be your pleasure, I will send a messenger for Mr. Foust; but I think I was right in saying that our ends will be as fully met if he will put in writing a statement of what has been done in his Department since he has had charge of that Department; I think that will serve our interests just as well.

MR. HUTCHISON: I move that the paper by Mr. Foust be received and published with the proceedings.

MR. COWAN: I second the motion.

SECRETARY CRITCHFIELD: I don't want to raise any objection to that motion, but Mr. Foust has no paper. He said, "I don't have the time to write a paper." I said, "I know you can talk from the shoulder and tell us," and this morning I said to him; "If you will make a statement of the work done in your Bureau that can be sent to the members of the Board, if it be your pleasure, I will have it incorporated in the proceedings of this Board."

(Mr. Hutchison's motion was then adopted.)

## WORK DONE BY DAIRY AND FOOD BUREAU SINCE 1907

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By JAMES FOUST, *Commissioner*

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I regret more than I can express that my official engagements have made it impossible for me to be present at the meetings of the State Board of Agriculture. In order that your Board may have some idea of the work being done by this Bureau, I submit for publication in the Journal of your proceedings the following statement:

The eight million people of Pennsylvania spend about \$90 each for food, making their food bill reach the interesting total of \$720,000,000. Large as this sum is, the value of the public health and of the business morals to the community is vastly greater. The State Dairy and Food Commissioner is charged with the supervision of the food trade to see that the foods are clean, sound and unadulterated and their sale kept free from fraud. I respectfully present a summary of the operations and cost of this branch of the public service for the years during which I have been responsible for its direction. These figures show that the cost of the service is about twelve cents for each \$1,000 of food purchased, but that the receipts from fines and license fees are about twice the expenditure; so that there is no direct tax upon the consumer.

I would especially note that the Cold Storage Act has been in force only about four months, but that the experience gained shows the desirability of improving the Act so as to make it less vague at certain points, and to make the owner and warehouseman jointly responsible for promptly disposing of foods made legally unasaleable.

by over-long storage, and to provide more perfectly for the care of cold-storage foods after their withdrawal from the warehouse for sale.

The following represents a summary of work done during the period of my service:

| Year.       | Samples analyzed. | Cases terminated. | Receipts.    | Expenditures. |
|-------------|-------------------|-------------------|--------------|---------------|
| 1907, ..... | 7,400             | 664               | \$55,732 63  | \$78,455 88   |
| 1908, ..... | 8,300             | 300               | 54,580 62    | 69,968 20     |
| 1909, ..... | 6,200             | 797               | 86,594 15    | 83,700 00     |
| 1910, ..... | 5,594             | 667               | 110,802 95   | 79,661 65     |
| 1911, ..... | 8,200             | 1,029             | 120,993 43   | 83,083 15     |
| 1912, ..... | 7,204             | 1,049             | 136,125 49   | 81,858 55     |
| 1913, ..... | 6,846             | 1,025             | 173,789 76   | 75,587 12     |
|             | 49,744            | 5,531             | \$738,619 08 | \$552,314 55  |

Comparing the receipts and expenditures for the seven years, the total receipts were \$186,304.53 more than the expenditures.

MR. CREASY: I understand these reports are to be published. The report on Forest Fires—either I have been wrongly informed or else it don't quite agree with the information I have always seen in the newspapers with regard to the fires caused by the railroads. The statement has been made, and I have never seen it contradicted, except today, that at least 65% of the forest fires were caused by railroads. In the last session of the Legislature there was a bill introduced by Senator Hilton, providing that every person or corporation was to be held responsible for its fires, in accordance with the law laid down by Nathaniel Bacon, three hundred years ago. I have talked to a good many railroad men and they say, "We are going to get to that pretty soon." I believe if we want to have forests, the way to do is to lay down that old English law. As far as railroads are concerned, I live at a place where I can see these fires, have to go out and fight them, and I think that for the last fifteen or twenty years I have been called on to fight fires, it was always for a fire started by the railroad company. The people in Canada, I called on their Forestry Department at Toronto, and they have got a very stringent law in regard to railroads, and every railroad lives up to it by keeping somebody on the job when there is a dangerous time. I can very well see that one railroad is not going to take the precaution if they are not all compelled to do it. It would seem to me, that these railroads, as well as other people ought to be held responsible for the fires they have on their property, something similar to the Hilton Bill.

I believe the railroads are the cause of a great many fires. I know of property beyond Williamsport that has been burned over for thirty or forty years, and I am just as satisfied as that I am standing here that those fires could have been kept out; we will have the forests if

you just keep the fires out. If I have been wrong on this railroad proposition about the railroad causing all the fires, I want to be corrected, because I have seen the statement that as high as 85% of the fires were caused by railroads. This is a very serious matter in regard to forest fires and I believe that our railroads will yield if they find out that every railroad has to do it, because this timber question is a great question and I want to assure the Forestry Department, that, so far as the farmers are concerned, they are intensely interested in this forest business, in their timber loss, and are taking the greatest care possible about fires. Of course they cannot send to the Forestry Department about a fire when one is started, because by the time they would get the information, the forest would be burned up but that does not indicate—because we do not write to the Forestry Department—that does not indicate that we are not interested in this forest business, because the farmers are very much interested and they appreciate the work that the Department is doing in sending out these seedlings, etc., but I think we ought to go a great deal further in this fire business and hold people and corporations responsible for fires on their property; that was good English law two hundred years ago and would be good now.

MR. STOUT: Occasionally we have had some malicious person set fire to the woods, but in nine times out of ten I know from personal knowledge that the railroads are responsible for it.

MR. HEILMAN: The railroad set fire to a little strip of wood that ran three miles from my place and I was at an expense of paying \$3.50 for getting the fire out.

SECRETARY CRITCHFIELD: If my memory serves me right, I referred to that matter in the last annual report of the department. I think I pointed out that it was almost impossible to place the responsibility in case there was a fire, that it was an exceedingly difficult matter to prove that the fire was started by the engine, and therefore, I recommended the enactment of a law which would make it obligatory on the railroad to patrol their roads through forests so that the fires could be put out immediately after they were started. I cannot remember everything that went into that report, but I know I had that in mind, and that, as a matter of course, will go before the legislature and possibly may result in some action.

THE CHAIRMAN: Do not the railroads in some cases, especially in cases of individual loss, compensate for it? In fact I know that some of the railroads do compensate for individual loss like burning fences and so on.

MR. STOUT: I think it is only a matter of proof. If you have somebody that can see when they set fire to it, you have evidence, but if you have nobody around to see it, you haven't any evidence. Some years ago I knew the railroads set fire to the surrounding timber and asked the constable, "Why don't you report it to the District Attorney?" He says, "I spoke to him;" but at that time the District Attorney and everybody else had a railroad pass and the constable said, "The District Attorney said that I shouldn't say anything about it."

MR. HEILMAN: I don't want to be understood as being in favor of passing a law for the railroads only; I want a law that will apply to the other fellow as well as the railroad. I am not one of those fellows coming here asking for special privileges for the farmer; I want a law that will let everybody come under it, railroads as well as everyone else.

Vice President Wilson took the Chair.

The CHAIRMAN: If the Committee on Resolutions are prepared to report, we will hear their report now.

### REPORT ON RESOLUTIONS

The Committee on Resolutions then presented the following report, which was adopted, each resolution being first read and adopted separately:

*Resolved:* That the Legislative Committee of the State Board of Agriculture frame or have framed, an act which shall require all fertilizer manufacturers or concerns selling fertilizers or offering fertilizers for sale to stamp on the bag or container of such fertilizer, in addition to the present requirements, the source or sources from which is derived the nitrogen, the phosphoric acid, the potash, or any two or all three of these elements as the case may be. The act should provide for the chemical analysis of samples and provide that brands found not conforming to printed statement on bag or container, should be refused license thereafter.

*Whereas,* There is a movement to have a National Corn Show in Philadelphia in the year 1915, to be financed by the Corn Exchange Bank of Philadelphia.

*Resolved:* That the State Board of Agriculture encourage such a movement and give to it our hearty co-operation without pledging itself to any financial support.

*Resolved:* That the State Board of Agriculture hereby expresses its great pleasure in having in our meeting and on our program the heads of the other departments of our State Government and believes that a proper understanding of our relations to each other will be promotive of good to all.

JOHN SHOENER,  
G. A. BENSON,  
B. F. WAMBOLD,  
J. A. HERR,  
F. S. BRONG,

Committee.

After the adoption of the foregoing resolutions, the following resolution, also reported by the Committee on Resolutions, was read:

*Whereas,* The Highway Department has the legal right to call a road convention anywhere in Pennsylvania at any time it may deem best, and

*Whereas,* Such convention will develop and strengthen the friendship between the farmers of Pennsylvania and the Highway Department, and

*Whereas*, The road drag patrol system as revealed before the State Board of Agriculture, has produced such wonderful and economical results,

*Be It Resolved*: That it is the sense of this body that we urge upon our Deputy Highway Commissioner to follow out the more frequent road convention in patrol school demonstration on the township roads rather than in the comfortable and dry court houses, and

*Be It Further Resolved*: That our Deputy Highway Commissioner inaugurate a road drag patrol demonstration school in every county in our great State.

MR. DE WITT: I would say, just on that resolution, that the Highway Department is going to visit every county in the State and meet the supervisors of the townships of that county; they are at that business at the present time and it is proposed to pursue that until every county is visited, and I think it is a very wise thing for the Department to do, and a good thing, and if we, as a people, will be a little patient, I have faith to believe that the Department will soon let every man within this Commonwealth that is interested in roads know what the road laws are and the provisions of the road laws and give them the assistance to build good roads that they are entitled to give the people. We must not get in too much of a hurry. We may think that they are slow, but these men are doing the best, in my judgment, that they can do, and if they come out to each county, it is not confined to the supervisors at all, it is confined to the people, and address the people and explain to them the laws and help them, it is up to the people to come out and hear them.

MR. SHOENER: It seems to me, Mr. Chairman, that if it is the intention of the Highway Department to have these meetings, it would be a good idea for the farmers of this State or this Board to encourage the movement and assist them.

SECRETARY CRITCHFIELD: My thought is that the idea is in the minds of the Committee—although I cannot speak for the Committee—is, that inasmuch as there seems to be a little anxiety upon this question and some disquietude, that it is well enough to hold this resolution over. This resolution has gone to the Committee and, in order that the Board may have time to see what is going to be done, what will result between now and the time of our meeting in May, their recommendation is that this matter be held over; am I correct?

MR. SHOENER: That is my view.

SECRETARY CRITCHFIELD: So I think there is nothing to do but let the matter rest. This is a Standing Committee; it remains on duty during the entire year. The service of this committee will not end until the next annual meeting, and I have no doubt that, if the Committee sees that the Department is making the move we all believe it is likely to make just as soon as conditions are favorable, then of course there will be no further action.

MR. JOEL A. HERR: It was my suggestion that this matter be deferred. I think we want to give the Road Department a chance to inform us of their intention and that we must not act prematurely on that, because we haven't the knowledge, we have not been in close connection with them enough to know exactly what they are going to do, and this will allow us between this time and that, and that is early yet in the year for road making, to receive some information as to what they propose to do and get in line with them. I think we are coming to understand their intentions better, and the more we get acquainted with them, I think the less friction there will be between us.

MR. HUTCHISON: This seems to be quite an interesting question. Mr. McCaskey came up yesterday and gave us some talk of what they were doing in Lancaster. His pictures were all right, but bless you, there's hardly a county in the State but what is working the same way. The Highway Department has 1,100 of those drags working; there are three in our township that have been working now over 800 miles of road; Lycoming county has three or four hundred of those King drags working. They are splendid things and the State had them and they were working, but in the wisdom of the Auditor General, the money that the automobile people paid in has been tied up and all the machinery and drags and everything that was being done by the Highway Department all over the State has been stopped. You cannot run a drag without a team or without a driver. Now that was their work that they were doing. The farmers up through the State have been at this question of dragging the roads. It is a good movement and I believe that these conventions will be good things if this information is taken out to the people. We have all been talking good roads for years; my brother Downing here talked them all over the Commonwealth, and if this money had been let loose and been spent on the roads, we would have had several hundred miles or more of good roads in this Commonwealth, because they were making them. There is no question about it; but those engines and scrapers and plants are all lying idle today over the State, under sheds, and the money is lying in the banks and there it is tied up.

Now what we want to do is to get that money loose and get it to work; that would solve this question. I am as much interested in good roads as any man that lives in Pennsylvania. My people have lived on the soil since 1792 in this country and I am an American and I am a Pennsylvanian and I want to see the best highways that can be built for the least money. There's no one person got a patent right on his advocacy of good roads. We all have an interest in them, from the man who lives in the palace to the man who lives on the smallest farm in this State. We do not differ, but don't let us drag it down, let us elevate it, let us do what is right in this matter and we will get roads, I pray, in our generation and in our time.

MR. CREASY: I would like to ask how much money is tied up? I was in the Auditor General's office last summer and it seems now I may be misinformed, I want to try and enlighten myself—

MR. HUTCHISON: Mr. Creasy knows where to get that information as well as I do.

MR. CREASY: This is the point: I understood — I may be wrong—that there was a certain amount of money tied up; in other words, there was a lot of money to be distributed according to the road mileage of the different counties of the State. The Auditor General told me he was ready to distribute that money in that way, but I understood him to say that the Highway Commissioner wanted it the other way and he could not violate the law. If the Legislature wrote into an act that a certain amount of money that came from automobiles or anywhere else was to be distributed according to the road mileage to the different counties of the State, that is the way to get the money; I don't think we ought to let those Departments fight each other when the law is absolutely plain. If that is the case, if I am right, I think the Highway Department ought to take this money and distribute it to the different counties, because that has been one of the contentions all along, the money was to be distributed according to the road mileage.

MR. HUTCHISON: I think that is another bill entirely, another act of Assembly under the dirt road, and the only way to decide that would be to have those two acts here before us.

MR. SCHULTZ: If we want good roads, we either have to make them or pay for them, there is no question about it; nobody will do it for nothing. I believe that every farmer ought to take pride enough in his farm property to make the road along his property, if it is a mud road, himself. I did it and did it for years. I made my own drag, it did not cost the township one cent, and every time after a rain my men had orders to take the team, hitch it to that drag and go over that road. Many a time people came along there and when they got on that piece of road, they stopped and wanted to know whether the township made that road or the county or who took care of that road. It was no expense, practically to me, simply a little attention; and the pictures we were shown the other day on this canvas, I'd be ashamed if I had a road of that kind along my property, I'd take care of it myself before I'd allow it; it don't speak well for the farmer.

SECRETARY CRITCHFIELD: I move the adoption of the report of the Committee on Resolutions as a whole.

The motion was seconded and carried.

THE CHAIRMAN: The report of the Legislative Committee is next on the program.

MR. McGOWAN: In the absence of Mr. Blyholder, who left for his home last evening, the Committee beg leave to submit a brief report with the promise that the report will be more extended at the summer meeting at Stroudsburg.

MR. CREASY: This road proposition that I am so much interested in and have spent years and years on, I would really like to have this cleared up, and if there is no objection, I think we can get the Auditor General here to explain his side of this proposition, and I would suggest that we get him here to explain why this money is held up, if there is a reason for it.

**SECRETARY CRITCHFIELD:** We might proceed now until we are done and in the meantime, if the Auditor General comes in, there will be an opportunity for him to say something.

**MR. CREASY:** What time?

**SECRETARY CRITCHFIELD:** It will probably be fifteen minutes.

**MR. SCHULTZ:** I think we ought to have both parties here. Why not get Mr. Jones here?

**MR. HUTCHISON:** I think this matter is in the courts for a decision. I would like to hear them, but it is before the courts to be decided.

**MR. SCHULTZ:** Oh, we will be dead before the courts decide.

**SECRETARY CRITCHFIELD:** If it be the opinion of the Board that these gentlemen ought to be asked to come in, they can fix that by resolution; that is a matter for the Board. It was simply a suggestion that if anybody dropped in here and wished to take part in this discussion, there isn't any reason I can see why they should not do so, but the whole matter is in the hands of the Board. If it be the pleasure of the Board to call in the heads of these two Departments in order to make some explanation of the work they are doing, I cannot see that there is anything in the way of their doing so, and yet perhaps the propriety of such action might be questioned. The truth is that this Board is at least a quasi department of the State Government; here are these other two Departments of the State Government that have been participating in our meetings, and it is a question whether it is a proper thing, whether it would be the kind of courtesy that ought to be extended from one body associated with the Executive Department of the State Government to the other Department, to make such a request as that. I do not believe that we have any right to sit in council over what they are doing, but this matter is for you gentlemen. If any of you feel like making a motion, it is your privilege to make that motion, certainly.

**MR. STUDHOLME:** I would like to make that motion, that we invite both parties to come in and enlighten us on this proposition.

**MR. RODGERS:** I would second that motion, simply for the reason that Brother Creasy and other members of the State Board that are here—when we go home, the question will be asked, "Why is this money held up?" It is only for the information of the different counties that are represented here, to get that information back to our people. When we go back, they will ask, "Why is that money held up?" And say, "It was your business to find out, when you were at Harrisburg, to know why it is held up and what the possibilities will likely be of a decision coming so that the people can understand."

**MR. WEIMER:** I would like to amend that motion that we proceed with our business and call them in after we are through.

MR. RODGERS: As seconder of the motion, I will accept the amendment.

The CHAIRMAN: Our regular business will be all attended to in the next fifteen minutes; unless they come pretty soon, there will be nobody here.

MR. STUDHOLME: My motion was that the heads of those two departments, the Department of Highways and the Auditor General, be asked to call and explain why the road money is held up, and it was amended to read that they explain after we have completed our business.

The CHAIRMAN: It has been moved and seconded that the Auditor General and the representative of the Highway Department be asked to come before us and explain why the funds to be used for road purposes are being held up.

The motion was adopted.

MR. HUTCHISON: I move you that Mr. De Witt, the Chairman of the Road Committee, be requested to invite someone here to represent the Highway Department and that Mr. Creasy be appointed to invite the Auditor General.

The motion was seconded and adopted.

The CHAIRMAN: We will now have the report of the Legislative Committee.

#### REPORT OF LEGISLATIVE COMMITTEE

MR. McGOWAN: The first paragraph of this report is as follows:

The State Board of Agriculture hereby express our disapproval of that Act of Assembly which now demands that fruits and certain other products be sold at a greater weight for a supposed bushel than the actual weight of a full bushel, and we request that this law be so modified as to be proper and equitable to the farmers of the State.

I think now that we have potatoes at sixty pounds to the bushel, which is a little in excess of what a real bushel of potatoes weighs; apples are fifty pounds to the bushel and that is more than you can get in a bushel, unless you stamp or tramp them, and you don't have very nice fruit if you do a thing like that; you can't put enough on a bushel to weight fifty pounds.

The foregoing paragraph of the report was then, on motion, adopted.

MR. J. ALDUS HERR: Would there be any opportunity to add something to that?

MR. McGOWAN: Well, we can do that at our summer meeting.

PROF. SURFACE: It said "agricultural products," so that lets in potatoes and apples, and may I call attention to the justice of this? There are certain varieties of apples that weigh only  $39\frac{1}{2}$

pounds to the bushel, and the average is only 42 or 43 pounds; there's only one variety of apple, the Laurier, that weighs 50 pounds to the bushel, and when a man sells fifty pounds of apples for a bushel, he is selling a peck over a bushel.

The balance of the report of the Legislative Committee was then read as follows:

We urge that the Legislature give us the necessary legislation for the regulation of the Commission business in agricultural products,—providing for protection against the unfair and unjust methods of some commission men.

We recommend increased appropriation for protection by the State Police Force, and request our Legislature to give us such legislation as will provide greater adequate protection of life and property in the rural districts.

We commend the action of the last Legislature in giving us a good Pure Seed Bill, thus protecting the farmers from the great annoyance of having their farms saturated by sowing noxious weed seed.

We regret that the last Legislature failed in having a law passed regulating the use of lime upon our soils.

We recommend that a Pure Lime Bill be passed during the next session of the Legislature, thus protecting the farmer of the State from spending money for useless brands of so-called agricultural lime.

We recommend that some steps be taken for more protection to the farmers in the inspection of Commercial Fertilizers; that is, a more strict law of inspection of fertilizer factories, to ascertain the genuine elements of plant food used in the manufacture of fertilizers.

We advocate a system of appropriation for construction of our Public Roads throughout the State, similar to the system now in vogue as moneys appropriated for our Public Schools.

We commend the action of our last Legislature in giving increased appropriation for our Pennsylvania State College Farm Advisory Work, to Farmers' Institute Work and Department of Agriculture to further the work of greater development along Agricultural lines throughout the Commonwealth of Pennsylvania.

S. S. BLYHOLDER,  
Chairman.

H. G. McGOWAN,  
Secretary.

H. C. SNAVELY,  
ROBT. W. LOHR,  
M. M. NAGINEY,

Legislative Committee.

The CHAIRMAN: What is the pleasure of the Board as to these resolutions?

MR. JOEL A. HERR: I move the adoption of the report.

Motion seconded.

MR. J. ALDUS HERR: In our county, there is quite a good deal of lime sold by the bushel, I dare say the majority of it, that is by the measured bushel. As I understand, the legal weight of a bushel of lime is eighty pounds.

A Member: Seventy.

MR. J. ALDUS HERR: Well, we are invariably getting sixty to seventy-five. Why should not lime be sold by weight instead of measure? About three-fourths of our lime is sold by the measured bushel and we don't get our measure. That is the only thing I wanted to include in that. It can be brought up at the May meeting.

The motion to adopt the report of the Legislative Committee as a whole was then carried.

MR. McGOWAN: Mr. Chairman, I move that we reconsider a portion of the Executive Committee's report of yesterday, that portion relative to the appointment of the Entomologist and the creation of a new Specialist on Insecticides; I move that we reconsider that portion of our report.

The motion was seconded and adopted.

MR. McGOWAN: We make the following recommendations for Entomologist, Prof. H. A. Surface; for Specialist on Insecticides, Mr. J. D. Herr, Lancaster.

On motion, the report was adopted.

MR. STUDHOLME: May I, at this time, offer a motion on view of the fact that the report of the Legislative Committee and the report of the Committee on Resolutions are very important for us, I would like to make this motion, that in future the reports from these two committees be presented before the Board not later than the second day of our meetings.

The motion was seconded and adopted.

MR. JOEL A. HERR: This Committee on Resolutions was not appointed until near the close of this session. If this Committee on Resolutions is composed of different members at our next annual meeting, there will be another Committee on Resolutions. When are they to begin? And again, if we report at the May meeting of the Board at Stroudsburg, the meeting only consists of one session, the first session, so I don't see the object of this resolution.

MR. STUDHOLME: My idea was simply this, that the last day of this meeting is not very well attended and these resolutions ought to come up when the full membership of the Board are here.

MR. JOEL A. HERR: I agree that the Resolutions Committee ought to be required to report earlier, but when the Committee is not appointed until the close of the session, how are they going to report?

MR. STUDHOLME: There is no reason that I can see why this Committee could not be appointed earlier in the meeting, no reason for waiting until the latter end of the meeting.

SECRETARY CRITCHFIELD: The Committee is appointed by the Executive Committee; the Executive Committee can make no report until they have an opportunity to meet and do their work after the election of officers. The Executive Committee is elected by the entire Board, therefore there must necessarily some time elapse between the opening of the session and the appointment of this Committee on Resolutions and the Legislative Committee also. I think it possible though, that it may be so arranged as to have the reports of these committees come in not later than the second day, as is suggested by the motion. It is a matter for you to consider.

MR. JOEL A. HERR: I ask, for information, when the term of this Committee expires; whether this Committee on Resolutions, acting at this meeting, is to act and be the Committee on Resolutions at the next meeting? We don't want two Committees on Resolutions at the same time.

SECRETARY CRITCHFIELD: Certainly, this is a Standing Committee, and is carried over during the entire year, the year that will end with the close of the work of the year 1914.

MR. JOEL A. HERR: Then we understand that this Committee shall act at the next annual meeting of the Board, and the Committee then appointed by the Executive Committee shall continue for next year; is that what I understand?

SECRETARY CRITCHFIELD: No, sir.

MR. JOEL A. HERR: Then there will be two committees at the same time.

SECRETARY CRITCHFIELD: This Committee, like all standing committees, will continue during the present year, and at the close of the present year, at the close of the year 1914, this Committee will have accomplished its work and at the next annual meeting another Committee will be appointed for the year 1915, which will continue, like all the Standing Committees, for one year.

MR. CREASY: I would like to report that the Auditor General is here, ready to give his explanation.

MR. MAYER: I move that we hear his report.

SECRETARY CRITCHFIELD: Perhaps we had better wait just a few minutes.

MR. MAYER: While we are waiting, I would like to ask a question. According to the law of 1853, the Board of Agriculture was established and on that Board the bee-keepers and the poultrymen were given a seat. Now I would like to ask this body to correct an error which has crept in and which has been carried along, and that is, the representative here called on the program adopted by the Pennsylvania Branch of the American Poultry Association—I

am a life member of that branch and also President of the Pennsylvania Poultry Society—I wish to say that that branch has no right to be a member of this Board, because it is not a State organization, it is a National organization, and I would like to make a motion that Mr. W. Theodore Wittman, who is also a member of the Poultry Society, be made a member of this Board to represent the Pennsylvania State Poultry Society, instead of the Pennsylvania Branch of the American Poultry Association. I believe, Mr. Secretary, that that should be done, because it corrects a legal phase over which we had some conflict with the Legislature last year, when we asked for an appropriation. I would ask the Board to act on that amendment to change this report, to cut out the title of the Pennsylvania Branch and substitute the State Poultry Society for it, with Mr. Wittman as our representative on this Board. As President of the Society, I have appointed him.

(Motion seconded.)

MR. JOEL A. HERR: Before that vote is taken, should not credentials be prepared and submitted to the Board, and the Board then act?

THE CHAIRMAN: Would not this appointment be his credentials?

MR. JOEL A. HERR: Well, he ought to present his appointment in writing as credentials, so that we could act upon it.

SECRETARY CRITCHFIELD: My understanding of the matter is that the President of the Association has the right to appoint, that is a matter for them to determine, and the President is here and has stated to the Board in open session that he has made this appointment. That is the reason I seconded the motion, and I think that we have the very best evidence that it is possible for us to obtain, of his right to represent this Association on the Board.

MR. HUTCHISON: It is only recognizing another society, if Mr. Mayer is right in his statement, and I have no doubt he is, we are just transferring from one society to the other—correcting our records.

MR. MAYER: I was trying to make our records legal, that's all.

(The motion was then adopted).

MR. CREASY: Mr. Powell, the Auditor General of Pennsylvania, is here, ready to report.

MR. POWELL: Mr. Chairman and Gentlemen of the Agricultural Board, I was engaged in the settlement of some corporation taxes when my friend, Farmer Creasy, came over after me, and I did not have an opportunity to know just what you wanted to know and just what questions you wanted to ask me, but I want to say to you that I am prepared to answer any question you want to know about the expenditures, so far as the records of my office will show them, and to answer any question as to the position of the Department at this time or any other time. And I want you to bear with me a little bit, because you will understand that it is impossible for me to

know more about the details of the Highway Department than the Commissioner of Highways, while at the same time I am called upon to know about the details of the Health Department, the Department of Internal Affairs, the Department of State and everything else, because every dollar that comes into the State Treasury comes in over the Auditor General's signature, or he must countersign the receipt. Every dollar that goes out, goes out in the same way.

MR. HUTCHISON: Brother Creasy was to state to you our position.

MR. POWELL: If you will just bear with me a minute until I give you the general idea of it, I will take up the other. That being the position, the best thing I could do was to get a man and put him on this stuff. We got a man named Swearingen, a farmer, civil engineer, and a good accountant, and he knows more about the Highway Department in detail than I know, and all he knows he tells me, and I have, as the chief of the Bureau of Accounts, Mr. Rodgers, the former Deputy or Auditor General's assistant, and I believe the ablest man who has ever been in that position, and, so far as I know, the ablest man I could get for it, and that is the reason he is there. Now, if somebody will state the principal question you want me to answer, I will be glad to do what I can.

MR. CREASY: The question is up in regard to this money that is being held up, as is charged, by the Auditor General's Department —to explain why it is held up and how much is held up?

MR. POWELL: Well, gentlemen, there has been so much newspaper publicity about that, that I am glad to have the opportunity to explain it to common-sense men. As a matter of fact, there is no requisition before the Auditor General's Department drawn upon funds which are lawfully in the State Treasury by the Highway Department, which has been refused.

Now I stand upon that proposition; not a dollar in the Department upon which a requisition has been drawn that has been refused. Now I will explain. The Legislature of 1913—and you will understand I was in the Senate at that time—came into existence in January, 1913. At that time it was represented to the Committee on Public Roads, of which I was a member, that there was about \$1,400,000. which had come into the State Treasury as the result of receipts of automobile license fees and fines from the original passage of the Act in 1909 till that date. The Legislature passed an Act of Assembly, a separate Act, appropriating that \$1,400,000 to the Highway Department, and that Act was honored, requisitions were drawn upon it and substantially all of that funds has been paid out and spent by the Highway Department. Then, along toward the close of the session, they alleged that there was \$400,000 more in there as the receipts from that fund, and an Act of Assembly was drawn and passed, appropriating that \$400,000 for the use of the Highway Department, and Mr. Creasy, Mr. Humes, the Democratic leader of the House, and other members of the House and Senate, insisted, with the Highway Department, that that Act should provide for a proportionate expenditure of the appropriation in each

and every county of the State of Pennsylvania, and although there was opposition to that amendment, the amendment prevailed and the Act was passed in that form. That was honored by me after I came into the office of the Auditor General and I simply required the Commissioner of Highways to certify that he was spending it in proportionate amounts, although his vouchers did not absolutely show upon their face that the expenditures were made in counties in proportion; so that \$2,200,000 of automobile license fees, which were in the Treasury prior to the close of the Legislature of 1913, were properly appropriated; warrants upon those funds have always been authorized and no payment has been retained. After that was done, the Legislature then passed this Act upon the 23d day of May, 1913, which purported to be an amendment of the 21st Section of the Act of 1909, regulating motor vehicles. The Section as amended read this way:

Section 21. The moneys derived from the registration of motor-vehicles, and from licensing operators thereof, under the provisions of this act, shall be paid into the State Treasury; and all such moneys hereafter paid into the State Treasury are hereby specifically appropriated at the State Highway Department, for the purpose of the construction, maintenance, improvement, and repair of State Highways and State-aid highways, as described in the act creating the State Highway Department, approved the thirty-first day of May, Anno Domini one thousand nine hundred and eleven. The Auditor General shall, upon requisition from time to time of the State Highway Commissioner, draw his warrant upon the State Treasurer for the amount specified in such requisitions, not exceeding, however, the amount in such fund at the time of making such requisition.

Now, while Mr. Rogers is finding the Act for me, I will say that we then took up the question of the regulation of motor vehicles and the increase of the fees which were to be paid for the licensing of motor vehicles, the general law changing the regulations. That general law, after considerable discussion and amendment backward and forward, was finally brought to a vote and passed, I believe, on the seventh of July. Now, in that Act, the Legislature again attempted to include substantially the same wording as that which I have read you from the Act which was passed on the 23d of May. Under this Act, passed on the 23d of May, the Highway Department should have taken a copy of that Act as soon as it was signed, down to the State Treasurer, and demanded that all money that was in his hands as receipts from license fees should be kept in a separate fund, that he put them in a separate fund and mark it, "Highway Fund" or "Automobile Fund," and it is so shown on our daily balance sheet to this day. He created that separate fund. This is the provision of the Act amending that same section again.

Section 10. The moneys derived from registrations and from license fees under the provisions of this act shall be paid by the State Highway Department into the State Treasury, for safe-keeping; and shall by the State Treasurer be placed in a separate fund, to be available for the use of the State Highway Department upon requisition of the State Highway Commissioner. All such moneys here-

after paid into the State Treasury are hereby specifically appropriated to the State Highway Department, for the purpose of assisting in the construction, maintenance, improvement, and repair of State Highways and State-aid Highways, as described in the act creating the State Highway Department, approved the thirty-first day of May, Anno Domini one thousand nine hundred and eleven. The Auditor General shall upon requisition, from time to time, of the State Highway Commissioner, draw his warrant upon the State Treasurer for the amount specified in such requisition, not exceeding, however, the amount in such fund at the time of making such requisition.

That Act was passed and signed by the Governor on the 7th day of July, 1913. A few days after that Act was passed, a requisition was drawn upon me by the Highway Department, which said, "Balance in the fund, etc." I told the officers of the Highway Department that I would have to look into the matter before the requisition was honored. I then ran up against the specific Appropriation Act of 1909, which is as follows:

#### AN ACT

Making it a misdemeanor for any officer of this Commonwealth to authorize to be paid, or for the State Treasurer to pay, any money out of the State Treasury except in accordance with the provisions of an act of Assembly specifying the amount and purpose of the expenditure; or for any officer of this Commonwealth to authorize to be paid, or for the State Treasurer to pay, any money out of the State Treasury in excess of the amount of such specific appropriation; and providing penalties for the violation thereof.

Section 1. Be it enacted, &c., That from and after June first, nineteen hundred and nine, it shall be unlawful for any officer of this Commonwealth to authorize the payment of any money, by warrant or otherwise, out of the State Treasury, or for the State Treasurer to pay any money out of the State Treasury, except in accordance with the provisions of an act of Assembly setting forth the amount to be expended and the purpose of the expenditure, and it shall also be unlawful for any officer of this Commonwealth to authorize the payment of any money, by warrant or otherwise, out of the State Treasury, or for the State Treasurer, in excess of the amount thus specifically appropriated: Provided, however, That the provisions of this act shall not be construed to prohibit the Auditor General and State Treasurer of this Commonwealth from returning to the various counties thereof the proportion of the personal property tax authorized by law to be returned to said counties; or the Auditor General and State Treasurer of this Commonwealth from returning to the several cities, boroughs, and townships of the first class thereof the proportion of the tax on premiums received from foreign fire insurance companies authorized by law to be returned to said municipalities.

Section 2. That any officer of this Commonwealth violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be sentenced to pay a fine not

exceeding five thousand dollars, and undergo an imprisonment for a term not exceeding two years, or either or both, in the discretion of the court.

Section 3. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

After reading that Act and considering the Constitution very carefully, I decided that I'd rather stay at large and that I'd leave that money in the State Treasury. Now, that is the thing in a nutshell, and there I want to say that immediately work was stopped by the Highway Department all over the State, and they gave out the word to everybody, "You can't get your money, the Auditor General won't let us have it"; and they even stopped the payment of vouchers previously issued for the pay of men working upon the roads and they told the banks that they could not get the money from the Auditor General's Department, and after that went along for about two months or until about September, so many of my friends all over the State kept writing in as to the situation, that I finally, after due notice to the Republican State Chairman, Mr. Crow, told him that I would give out the exact facts, and I gave out a statement showing that at the time, or as of the date of September 1st, 1913, the Highway Department had on the books of our office a credit of three million, nine hundred and ninety-nine thousand and some hundred dollars, and that statement was absolutely correct, not only to the dollar, but to the penny, and it has never been disputed. The Highway Department then proceeded to let 18 contracts, upon the 18th of September, and upon the last of September, gave out a statement saying that it did not have that sum to its credit at that date, and my only reply hereto was that that did no dispute my word at all, that if I said it was a nice, bright day in Harrisburg today and rather warm weather, that did not justify any other officer waiting until along in the middle of February and saying: "Powell's a liar, it's snowing and raining today."

Now, that is the whole situation so far as the happenings have been for the last nine months. But now let me call your attention to something else, here is the funny part about it, and I am going to give my case away here, as a public official, and disregard my usual practice as a lawyer. I usually keep my mouth shut until the case comes to court, but I am going to tell you now that the suit of mandamus which was brought against me to compel the payment of that money has never been pushed. Mr. Hampton Todd, the former Attorney General of the Commonwealth, voluntarily offered his services to support and maintain the Auditor General in that suit, because, in his letter, he said that he believed that specific appropriation act of 1909 was the most important act upon the statute books of this Commonwealth and that, if it had been passed a number of years before, we never would have had the Capitol graft scandal which was a stench in the nostrils of every decent citizen of the Commonwealth.

I advised the Attorney General, representing the Commissioner of Highways, that, associated with Mr. Todd, would be D. T. Watson, of Pittsburgh, and John B. McNamara, and from that day to this, that is the last I have heard of that suit, but I want to show you something.

Now this Act of 1913, which made the specific appropriation, was passed on the 7th of July. The requisition was drawn upon me on the 29th of July and refused about August. You notice that Section 10, that I read you, said, "All moneys derived from registration and from license fees under the provisions of this Act." Now, Section 24, when I sat down with the seven lawyers that I have in my own Department there as subordinates—and they are good lawyers, too, Mr. Rogers, Mr. Murray, Mr. Hill and Mr. Hess, and one or two others—Mr. Lehman—graduates from Harvard Law School, myself a graduate of Yale, Mr. Hill a graduate from the Western University of Pennsylvania, and a number of other institutions that were worth while listening to, at least—we were a little bit in doubt about it until I said to them, "Now there is something in that Act"—I read the Act when I was on the Committee on Highways, "and I know there's something in that Act that does not authorize this requisition." This proviso was the last paragraph of the Act: "Provided, however, that the provisions as to the registering of motor vehicles as set forth in Sections 1, 2, 3, 4 and 7 of the Act approved April 27th, 1909, and relating to motor vehicles," etc., etc., and citing some other acts, "shall remain in full force and effect until December 31st, 1913, when the provisions as to registering motor vehicles as set forth in this Act shall become effective."

Now the Act itself provided "that all moneys derived *under the provisions of this Act., etc.*" and then in this clause it said that it did not take effect until the 31st of December, 1913, and when I refused that requisition, no law officer or other officer of this Commonwealth outside of my Department ever seemed to have read the Act under which they claimed the money. Up to the 31st of December, 1913, there was not one dollar or one penny in the State Treasury applicable to the requisition of the Commissioner of the Highway Department, and I think that any lawyer of any standing anywhere on earth will tell you that that is actually the truth, and it don't need a lawyer to know it, because you can understand plain common sense and plain English yourself. The best lawyer I know is a man with common sense.

Now, gentlemen, if there is anything else you want to ask me, I will be glad to tell you. I have been absolutely frank with you. I have kept out of the newspapers as far as I could, but I am glad of this opportunity to explain to you, because you are citizens of the Commonwealth, you are taxpayers, you live along these roads and are entitled to the information.

A Member: What is the total amount of money on hand?

MR. POWELL: The total amount of money on hand? I cannot tell you, gentlemen, the exact figures on that until Mr. Swearingen comes back with the amount, but it is about five hundred thousand dollars, I think, now, which has really come in under the provisions of this Act of Assembly, and upon which the question of payment would be properly raised on this Act of 1909.

Now, I offered to the Highway Department to take the matter up in an amicable way and offer a case stated, so that the Supreme Court might pass upon the matter and I might have protection, be-

cause I don't want to go to see John Francis or Warden McKenty, and I offered to take it up in that way, in an amicable way, and have them decide whether or not it was payable, but the adverse action in the way of a mandamus was brought and is still pending. Now, there's about five hundred thousand dollars in that fund, which has been derived under the provisions of that Act, but there was no money in the fund at the time the requisition was drawn and no money has been drawn or no requisition has been drawn since the 31st of December and the question has not properly come up.

A Member: What is necessary now for the Highway Department to do in order to secure this money?

MR. POWELL: Have a meeting of the Legislature and pass a proper Act. That is the plain truth about the matter. The position of every good lawyer with whom I have discussed this question is that the Legislature cannot, by using the words "specifically appropriated," make that which is indefinite in amount, indefinite in purpose and indefinite as to date of receipt, be a specific appropriation. If the law requires that I shall pay you a specific sum, it means that that shall be a sum definite, not what somebody else may pay me at some time in the future or may not, and to my mind, that money is still in the State Treasury and will be available for the use of the Highway Department upon the passage of a proper appropriation bill, just as the passage of the one appropriating the \$1,400,000 and the \$400,000, and I may say that this is not the only Department that has that question raised.

The Game Commission has substantially the same subject up in regard to the payment of bounty for noxious animals: It says, "One-half of whatever shall come in from the license fees of resident hunters shall be used as a fund to pay bounties on noxious animals." Now that is not naming a definite amount and nobody can make it definite. Nobody knows how much is going to come in and nobody knows how much is going to be there to be paid out at any time.

MR. CREASY: How much money is there in the State Treasury that is available now to the Highway Department without any further laws?

MR. POWELL: That is contained in another set of books and we didn't bring Mr. Brindle over; he is the man that handles that.

MR. CREASY: Have you got any idea about how much?

MR. POWELL: I think it's about \$1,500,000.

MR. CREASY: Available now?

MR. POWELL: Still unexpended, yes. Now, the receipts from automobile license fees from the first of January, for the month of January, 1914, are \$355,030. The receipts from automobile fines are \$235, making a total of \$355,265 available last night at the close of the Treasury for future appropriation by the Legislature to the Highway Department. But, gentlemen, you understand my situation exactly, I think. I am not the Legislature; the Constitution does not say that the Auditor General can make laws; it says that

the Legislature shall make the laws, and the Legislature meets and throws in a jumble of stuff and then adjourns. I try to make common sense out of what the Legislature said last, and I have no remedy whatever except to follow that as the law until the Legislature meets again and changes it.

If any of you are County Commissioners, you know the difference. The Legislative Board for a county is the three Commissioners; they can meet any day they want to and change the rules and regulations; they can issue bonds and they can do a thousand other things, they can do practically anything that the people of the county can do, but the power which is reposed in the people of the State of Pennsylvania under the Constitution rests primarily in the two Houses of the Legislature and the Governor. Until they have spoken, I have no power or authority whatever, and after they have spoken, my power and authority is limited absolutely by the hodge-podge of statements which they have made. If they say black is white, then, for two years black is white, so far as the Auditor General's Office is concerned, because they have the final say and they represent the people of this State. Whatever the people of this State say to the Auditor General's Office, for a little while, at least, is going to be what goes over there, because just now I happen to know the fellow that holds the job. Mr. Rogers calls my attention to the fact that there may be more than that amount of money in the Treasury which would be available, because some license fees were paid under the provisions of that Act by way of an advance application prior to the 31st day of December. You see that would raise another nice question of law, whether they were really paid and whether they are receipts under the provisions of that Act as it has been read, but that is a small matter, it is a question of \$200,000.

MR. CREASY: This \$1,300,000 that is available now, how long has that been available for the Highway Department?

MR. POWELL: Oh, ever since the last session of the Legislature. The Highway Department, by the last session of the Legislature, received an appropriation of \$7,152,708.92, and the total appropriation from June 1st, 1911, to September 1st, 1913, including the money paid into the Automobile Division, has been \$8,071,830.29.

MR. CREASY: And this \$1,300,000 they could have used any time they'd have drawn their warrant; is that the way I understand it?

MR. POWELL: I am glad you asked that question, because that is the only way you can help me to give you an absolutely clear statement in regard to this matter and a statement which you will understand and everybody will understand. You see the Highway Department, in arranging its various funds for the General Appropriation Bill, put \$4,000,000 for construction work, in the General Appropriation Act. Then it put in something for experiments and tests, then it put in another sum for State-aid construction. It put in another sum for payment of the State's share of township roads, I believe, etc., so that while these funds are available to the Highway Department as a department, I do not want you to misunderstand me to say that all of those funds are available for the

actual construction of new Sproul routes, because I want to be absolutely fair to the Highway Department.

Don't misunderstand me, I am not attacking them, they have their troubles, the only difference I have with the Highway Department is that they did not even attempt to tell the truth about the Auditor General's office, and I make that statement now publicly. Now I guess that answered your question, didn't it?

MR. CREASY: The question in my mind was this: They were saying there was no money available for these roads and some time in September they quit working these Sproul routes that they had taken over, they said there was no money here to fix those roads; what we are trying to get at is whether there was or was not?

MR. POWELL: Well, I will say to you that I can give you and will be very glad to give a committee of this Board the exact amount that was in each fund upon any day of the year, that is, that was available for the construction of Sproul routes, that was available for the maintenance of Sproul routes, that was available for the construction and maintenance of State-air routes, etc., because we carry all those items in separate accounts and keep a multitude of accounts with the Highway Department, carrying every appropriation just as it is given. Now, the trouble was this—

MR. CREASY: Then there was money available in September to keep the Sproul routes in repair, was there or not?

MR. POWELL: Oh, yes, there was, there was money enough for them to let 18 contracts against it on the 18th of September, and then say I hadn't told the truth on the first; and I can give the amounts of those contracts and have the copies on file in my office. Here is the provision of the General Appropriation Bill for the State Highway Department:

#### STATE HIGHWAY DEPARTMENT

For the payment of the salary of the State Highway Commissioner, two years, the sum of sixteen thousand dollars (\$16,000).

For the payment of the salary of the First Deputy State Highway Commissioner, two years, the sum of twelve thousand dollars (\$12,000).

For the payment of the salary of the Second Deputy State Highway Commissioner, two years, the sum of twelve thousand dollars (\$12,000).

For the payment of the salary of the Auditor, two years, the sum of six thousand dollars (\$6,000).

For the payment of the salary of the Chief Engineer, two years, the sum of fourteen thousand dollars (\$14,000).

For the payment of the salary of the Bridge Engineer, two years, the sum of seven thousand two hundred dollars (\$7,200).

For the payment of the salaries of fifty superintendents, two years, the sum of one hundred and fifty thousand dollars (\$150,000).

For the payment of the salaries of fifteen Assistant Engineers, two years, the sum of seventy-two thousand dollars (\$72,000).

For the payment of the salary of the Chief Draftsman, two years, the sum of four thousand eight hundred dollars (\$4,800).

For the payment of the salaries of four clerks, two years, the sum of nine thousand six hundred dollars (\$9,600).

For the payment of the salaries of a Paymaster and two assistants, to be appointed by the State Highway Commissioner, two years, the sum of twelve thousand dollars (\$12,000).

For the payment of the salaries of a statistician, to be appointed by the State Highway Commissioner, two years, the sum of six thousand dollars (\$6,000).

For the payment of the salaries of four draftsmen, two years, the sum of fourteen thousand four hundred dollars (\$14,400).

For the payment of the salary of a chief clerk, two years, the sum of four thousand eight hundred dollars (\$4,800).

For the payment of the salaries of two bookkeepers, two years, the sum of six thousand four hundred dollars (\$6,400).

For the payment of the salaries of four stenographers or clerks, two years, the sum of nine thousand six hundred dollars (\$9,600).

For the payment of the necessary traveling and other incidental expenses of the State Highway Commissioner, the First Deputy State Highway Commissioner, the Second Deputy State Highway Commissioner, the Chief Engineer, the Bridge Engineer, the fifteen Assistant Engineers, the fifty Superintendents, the two Maintenance Engineers, and the Paymaster and his assistants, two years, the sum of one hundred and twenty-five thousand dollars (\$125,000).

For the payment of contingent and incidental expenses of the State Highway Department, two years, the sum of seventy-five thousand dollars (\$75,000).

For the payment of the salaries and other necessary expenses of the Automobile Division of the State Highway Department, two years, the sum of one hundred and sixty thousand dollars (\$160,000).

For the installation and equipment of a physical and chemical laboratory, for the payment of salaries and expenses of chemist and necessary laboratory employes for experimental work and tests, and for the payment of traveling and incidental expenses necessary to make a thorough and a comprehensive study of road construction, construction methods, and construction materials, two years, the sum of fifty thousand dollars (\$50,000), or so much thereof as may be necessary.

For the permanent improvement of highways described in the act creating the State Highway Department, approved May thirty-first, one thousand nine hundred and eleven, and acts supplementary and amendatory thereto, as State-aid Highways, two years, the sum of one million dollars (\$900,000).

For the maintenance of the improved and unimproved State Highways described in the act creating the State Highway Department, approved May thirty-one, one thousand nine hundred and eleven, and acts supplementary and amendatory thereto, two years, the sum of one million nine hundred thousand dollars (\$1,400,000); for the payment of all other expenses, including the payment of salaries and expenses of such additional engineers, engineers' assistants, superintendents, inspectors, clerical assistance, and employes, necessary to carry on the work of the State Highways, two years, the sum of one hundred thousand dollars (\$100,000).

For the construction and repair of State Highways described in the act creating the State Highway Department, approved May thirty-first, one thousand nine hundred and eleven, its supplements and amendments, and for the payment of the State's share of the maintenance and repair of State-aid Highways constructed prior to, or constructed or improved under, the provisions of the act creating the State Highway Department, approved May thirty-first, one thousand nine hundred and eleven, its supplements and amendments, two years, the sum of three million six hundred thousand dollars (\$1,000,000); and for the payment of all other expenses, including the payment of salaries and expenses of such additional engineers, engineers' assistants, superintendents, inspectors, clerical assistance, employes, and labor, skilled or unskilled, necessary in the judgment of the State Highway Commissioner to carry out the work of the State Highway Department, two years, the sum of four hundred thousand dollars (\$400,000).

For the payment of the necessary expenses in the acquiring of turnpike roads as authorized by the act creating the State Highway Department, approved May thirty-first, one thousand nine hundred and eleven, two years, the sum of two hundred thousand dollars (\$100,000).

For the payment of deficiency in the salary and necessary expenses incurred by the employment of one superintendent of maintenance, not specifically provided for under the act of May thirty-first, one thousand nine hundred and eleven, for the period from April first, one thousand nine hundred and thirteen, to June first, one thousand nine hundred and thirteen, the sum of nine hundred eight dollars and ninety-two cents (\$908.92).

This is for two years, of course; all appropriations are made for two years. Now you see they had a fund of \$4,000,000 in there, and that last clause, of \$400,000, was suggested by me to the conferee in regard to the general appropriation bill, for the reason that they claimed that they had not fully described all the clerks and assistants they needed in their department. So I drew this rider and put in for the payment of all other expenses so that I'd have a chance to give them anything I thought was good business practice, including the payment of salaries and expenses of such additional engineers and engineers' assistants, superintendents, inspectors, clerical assistants, employees and laborers, skilled or unskilled, necessary in the judgment of the Highway Commissioner, to carry out the work of the State Highway Department for two years, the sum of \$400,000." I put that in myself to give them that much leeway so there could not be anything to hold up the department. Now the Governor, in his wisdom or unwisdom, cut that appropriation to \$1,000,000, altogether \$3,600,000, and that was their construction fund and it was up to me to let them have a maintenance fund or experimental fund or construction fund or some of these other funds appropriated for a specific purpose, or else when they used up their \$1,000,000, and the \$2,200,000 which had been appropriated by separate bills, they were done. I believe that the Highway Department now is telling the truth, that there is substantially no money in the State Treasury applicable to the present construction of Sproul routes; but on September first, at the time my statement was made,

it was true to the penny and they had in that fund over a million dollars; isn't that right Mr. Swearingen?

MR. SWEARINGEN: I think it is.

MR. POWELL: There was over a million dollars, and my recollection is that it was about \$1,500,000 that was still available for Sproul route construction alone, and against that they have let a number of contracts, and of course that money is now ear marked by the contractors, and though the money is still there, it is not available for the letting of new contracts. Is that what you wanted to know, Mr. Creasy?

MR. CREASY: And then the maintenance of those roads they have taken over—they took over about 10,000 miles of roads under the Sproul act and told us they were going to keep them in repair, and last summer they stopped work and said the Auditor General wouldn't give them any money.

MR. POWELL: At the time they stopped they had plenty of money and that statement was not true then; I believe it is true as of this date; I don't believe that they have very much money in that maintenance fund, I don't know the details of that, because I have not looked at it in the last few days. If we had known anything about it, about your wanting this information, we could have given you to the penny the full statement in regard to all these funds as of last night, but I didn't have any anticipation that the question was going to come up; but I will be glad to give it to any one of you or a committee if you will appoint a committee, and you can go in and examine our books and if anybody questions our books, they can be easily verified by the books of the State Treasury and if you think the two of us are not right, I guess the citizens of the Commonwealth will have to come and do it themselves.

MR. CREASY: Do I understand that from now on until the next Legislature meets, there will be no money available to keep these Sproul roads in repair, these 10,000 miles of roads that they have taken over?

MR. POWELL: Well, not very much, not enough. I think there is some in that fund, but not enough.

MR. CREASY: Not enough to keep them in repair for one year?

MR. POWELL: There's not enough, no.

MR. CREASY: In their appropriation, did they have that marked out? Did they have any plan for this maintenance and how much money it would take?

MR. POWELL: Yes, they represented to us that this amount they had in there for maintenance was exactly what they would need and we had a hearing before the committee and before these conferees, and Mr. Wilson, of the House, who was the principal conferee, insisted upon cutting that \$3,600,000 down to \$2,000,000 in the House.

MR. CREASY: That was the maintenance fund?

MR. POWELL: No, that was the construction fund, \$3,600,000 for construction and \$1,400,000 for maintenance.

MR. CREASY: They got all for maintenance that they asked for?

MR. POWELL: No, the Governor cut that too; but as we passed it in the Legislature we gave them for the maintenance of improved and unimproved State Highways the sum of \$1,900,000 and for the payment of all other expenses for maintenance, I put the same clause in there to help them out, \$100,000, then we gave them for the construction and repair of State Highways and the payment of the State's share for the maintenance and repair of State-aid Highways, \$3,600,000 and the extra \$400,000 I read you a while ago. Now, the Governor cut those amounts, instead of cutting down some of these salaries and experimental tests and travelling expenses, he cut out of construction and maintenance instead of cutting it out of the frills and the special salaries and things of that kind.

MR. CREASY: The point I am getting at is this: Then, as I understand it, the appropriation was correctly made to maintain these Sproul routes, that's maintenance and construction, and then, for some reason or other, the Governor cut off the very thing that the Highway Department had planned, the amount of money they should have to keep the roads in repair?

MR. POWELL: That is it exactly. There was \$4,000,000 appropriated for construction and maintenance, construction of State Highway and maintenance of State-aid highways, and there was \$2,000,000 appropriated for the maintenance of State Highways \$6,000,000 was appropriated for construction and maintenance and the Governor cut those funds; in the first place, the \$4,000,000 he cut to \$1,000,00 and the \$2,000,000 he cut to \$900,000. He cut a \$6,000,000 appropriation for construction and maintenance to \$2,500,000, because he left in the two clauses I put in, for the \$400,000 and the \$100,000; he cut \$6,000,000 to \$2,500,000, and that is the place where the money should have been left to get it into the roads. What we want in this State, is to get the money into the roads; we don't care about the rest of it; if we get it in the roads, we are all right. Now, gentlemen, I don't want to take too much of your time.

MR. CREASY: Then that money is all spent that can be used to keep these 10,000 miles of roads in repair, or is it not? As I understand, I think the greater part of it is spent.

MR. POWELL: On that proposition, I don't like to give you exact figures as of last night; that is, I don't like to give you a guess as to what were the figures last night, but if you will have somebody come to the office, I will give you the exact figures, just what is in each of these funds, because I'd rather not have it go out as my saying one thing when the books of the office will show the exact figures, but once the books of the office are examined and the bookkeeper gives me the exact figures, I will sign the statement and stand on it, and if anybody can show me that there's a penny error in it, I will pay ten cents for every penny of error he finds; that is how much confidence I have in the men of my department. They are the most efficient public employees that have ever been on the

"Hill" in Harrisburg, and if the people ever get any better ones, the millenium will be coming around pretty fast. There was one man that held a political job in my office and he's gone.

MR. STUDHOLME: I make a motion that we appoint a gentleman to get these figures from the Auditor General's Department.

Mr. Schultz seconded the motion.

MR. CREASY: Could that committee be instructed to find out from the Auditor General just how much money is positively available to the Highway Department, not how much is available after the law is changed, but how much can the Highway Department draw tomorrow?

The CHAIRMAN: Write the motion out.

MR. CREASY: Mr. Hunter is here and I think we ought to hear from Mr. Hunter.

The CHAIRMAN: We will put this motion first.

Motion was then adopted.

The CHAIRMAN: I will appoint on that committee, Mr. Schultz, Mr. Hutchison and Mr. Rodgers. If Mr. Hunter wishes to make some explanation, he can now have an opportunity.

MR. HUNTER: Mr. Chairman and Members of the State Board of Agriculture: I don't know that I have very much to say. I had no opportunity of getting any information; in fact I didn't know what was going on until I got in the room here; and I want to say at the start that the matters in controversy between the Highway Department and the Auditor General, I know practically nothing at all about. Mr. Bigelow is absent and he has been attending to such matters and I don't know just what has taken place along those lines. I do know, however, from what little information I have received, that there is very little money available for construction work or for maintenance work to be carried on by the State Highway Department this year; and while there may be balances shown in the Auditor General's Department, that does not show the amount of contracts that are outstanding that have to be paid out of these funds. The appropriations as made were for a period of two years. The Highway Commissioner had no right to expend in the State-aid work more than half of that amount of money in any one year, neither had he a right to expend more than half the amount of money appropriated for maintenance in any one year, so that those balances are still left. The appropriation, of course, included the maintenance of the State highways and also the State-aid highways, and I presume that I can, from our department, find out just how much is available for that work. I don't know here, because I didn't ask when I came down, but that will make some difference in the balances.

First of all, the contracts that are outstanding are not charged up against these respective funds, and while there was money, quite a large amount of money, standing to the credit of the Highway Department last fall, this year's money that we expect to expend after the first of June of this year, was also included in that fund, so it

was not money that we could use last year or that we can use now until after the first of June. I haven't anything further to say about those facts. The balances that the Auditor General will give will be correct as far as I know as to the balances actually on hand in the State Treasury.

MR. POWELL: You understand that a resolution was passed asking me to come over and answer some questions that they wanted to ask me.

MR. HUNTER: I understand; I knew nothing about it until the gentleman came up and asked me to come down.

MR. HUTCHISON: Wouldn't it be proper for this committee to call upon the Highway Department and ascertain what contracts were let to be charged up to this fund?

MR. POWELL: Yes, I think so. The only controversy I had was that they did not take the figures from the Auditor General's office as they were and then say, "Since this time we have left such and such contracts which we figure will consume so much of that money." That is what ought to be done this time and then there will be no dispute between these two departments; and after we give them the balances from our books, they can say how much of that is reserved for contracts which have been let and not completed, and then the people can get a fair idea of just how the matter stands, and the Highway Department has done itself more injustice than the people have done it; it should have been absolutely frank and given these figures at all times and thrown their books open, and I feel sure that if Mr. Hunter had been in charge, that would have been done, I want to say that for him, frankly.

MR. HUNTER: I want to say, Mr. Auditor General, that if my memory serves me correctly, the contracts that were let in September of last year were practically all State-aid contracts and were not contracts for the improvement of State Highways. They were all made for improvements under the section providing for State-aid improvement.

MR. POWELL: Well, the most of them were there is no doubt about that.

MR. HUNTER: And we are getting ready now to make contracts to use up the balance of the appropriation that is still available for State-aid work. Now, of course we will not be able to make contracts to cover all of that, because, under the law, that money that is available for the State-aid work is apportioned to the several counties of the State according to the number of miles of road in each county. There are a number of counties in this State that have made no application, so that we will not be able to use the money that is apportioned to those counties until the end of the year, June 1, 1915, because that much money appropriated or apportioned to the county must stay there until the end of the year.

MR. CREASY: The point I want to get at is this: I am elected Supervisor up there and we have some of this Sproul roads through our township. What I have been trying to get at is that the State,

in taking over these 10,000 miles of road with the Governor's veto, never took into consideration how much money they needed to keep those roads in repair for two years and we have the constables returning these roads and going after us and we say it is the State's business to keep them up. What I want to know is whether they have got money to fix those roads this coming year or not, and if I understand the Auditor General, that appropriation was so reduced that the Highway Department could have readily seen in the start that they did not have enough money to keep them in repair.

**MR. HUNTER:** The Highway Department did take into consideration the amount of money necessary to maintain the roads and asked for an appropriation accordingly and it was made by the Legislature. I don't know from what point of view the Governor looked at the matter when he made the cut, but under the provisions made in the Automobile Law, the Highway Department, I understand, was supposed to have obtained that money as the money was paid in; that now amounts to something over \$542,000; if that fund is not available and cannot be obtained until the Legislature makes a specific appropriation of the amount so paid in, then the money that was counted on as being used for part of the maintenance work will not be available.

**MR. HUTCHISON:** I move that this committee, which has been appointed to call on Auditor General Powell be authorized to call on the Highway Department also and ascertain how many contracts have been let and the amount of the same that will be charged up to this appropriation as indicated by Mr. Powell.

The motion was seconded and adopted.

**MR. STUDHOLME:** Of the total amount of money that was appropriated for the maintenance of the roads coming under the Sproul routes, is there still available one-half for this year's work?

**MR. HUNTER:** I cannot answer that question without the books; but I think not quite half of it, because the work was being pushed ahead quite rapidly with the expectation of being able to use the money paid in for automobile licenses, and the work started will probably consume more than one-half of the amount that was appropriated for maintenance.

**MR. HUTCHISON:** I move that we adjourn .

**MR. SCHULTZ:** I think we ought to extend a vote of thanks to representatives of these departments for coming here and making this explanation. The trouble in our State is a lack of confidence in our officials, and I think nothing better could have happened than what has occurred right here. We want to take the facts back to the people, that is what we need, and I think we ought to extend a vote of thanks before we adjourn. I move that a vote of thanks be extended to these public officials for the able instruction they have given us.

Motion seconded and adopted.

**MR. STUDHOLME:** Before we adjourn, when is this Committee to report, may I ask?

THE CHAIRMAN: If we adjourn they cannot report to us at this session.

MR. STUDHOLME: What time will we meet again?

SECRETARY CRITCHFIELD: They cannot report until some time in May. How long will it take to get those figures?

MR. POWELL: So far as our office is concerned, you can get them about forty minutes after one o'clock.

MR. HUTCHISON: I move that the report of this Committee be handed to the Secretary and published as a portion of our proceedings.

#### REPORT OF SPECIAL COMMITTEE ON ROADS

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Placed in hands of Secretary, as per motion authorizing the same.

Harrisburg, Pa., January 30, 1914.

Hon. N. B. Critchfield, Secretary State Board of Agriculture, Harrisburg, Pa.—

My Dear Sir:—The Committee appointed at the Friday forenoon session of the State Board of Agriculture that convened January 28, to secure a copy of the records of the Auditor General and State Highway Department, showing the amount of money that was now available for the use of the State Highway Department, beg leave to forward herewith the statements received from these respective officers.

Very truly yours,

JOHN H. SCHULTZ,  
MATTHEW RODGERS,  
GEO. G. HUTCHISON,  
Committee.

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Harrisburg, Pa., January 30, 1914.

To the Committee of the State Agricultural Board of Pennsylvania.

Gentlemen:—On behalf of the State Highway Department, the following information is submitted:

Out of the appropriations made by the Legislature at the 1913 session to the State Highway Department for State Highway construction, there remains a balance in the hands of the State Treasurer, the sum of \$164,068.34, against which there is a balance due on contracts of \$305,497.50. This item apparently is overdrawn, upon approval of the Act of May 23, 1913, P. L. 300, which appropriated the money paid for motor vehicle licenses to the use of the State

Highway Department, contracts were made accordingly and which money the Department has been unable to use, hence, the apparent deficiency.

The item of \$181,505.29 is available for State Highway maintenance.

The item of \$900,000.00 of the 1913 appropriation and the item of \$192,609.15 of the 1911 appropriation makes a total \$1,092,609.15, for State-aid Highway work, but there is due on outstanding contracts the sum of \$819,314.90, leaving a balance of \$273,294.25, available for State-aid Highway work. In addition to this balance there will be due from counties and townships, when contracts are completed, the sum of \$845,774.45.

The item of \$373,807.49 can be only used for maintenance of State-aid Highways, being specifically appropriated for that purpose.

The item of \$2,571.25, is covered by a contract for work on the National Road.

The item of \$248,280.35 belongs to township highways, and cannot be used for State Highway work, either maintenance or construction.

The balance in State Treasury received from Motor-Vehicle license fees for 1913 is \$187,771.42. Amount paid to State Treasurer for 1914 license fees, \$544,791.00, making a total of \$732,562.42. This amount should be available for State Highway work by reason of the specific appropriations made under the Act of the 23d of May, 1913, P. L. 300, and Acts of July 7, 1913, P. L. 672, but which amount the Department is unable to use by reason of an objection made or raised by the Auditor General.

Contracts let by the State Highway Department since June 1, 1913, were for State Highways, 4; for State-aid Highways, 28.

This Department is willing to give to your committee such other information as you may from time to time desire.

JOSEPH W. HUNTER,  
First Deputy State Highway Commissioner.

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Harrisburg, Pa., January 30, 1914.

To the Committee of the State Agricultural Board of Pennsylvania.

Gentlemen:—I have the honor to herewith transmit to you a report of the balance in each separate item of the appropriations to the State Highway Department, together with the total of all funds available for use by the Highway Department, as of the close of business January 30, 1914, the total balance being \$2,638,915.47 available in all funds for the present use of the Highway Department. Permit me to say that I have no knowledge as to what proportion of this amount is committed upon recent contracts, as the contracts of the Highway Department are not filed with this Department until requisition is drawn for payment thereon. The statement is as follows:

## STATE HIGHWAY DEPARTMENT

|   | Act of— | Amount of appropriation. | Balance 1914.  |
|---|---------|--------------------------|----------------|
|   |         |                          | January 30,    |
| Appropriation.                            |         |                          |                |
| State highway construction, .....         | 1913    | \$1,000,000 00           | \$164,068 34   |
| State highway, salary and expenses, ..... | 1913    | 400,000 00               | 205,786 94     |
| State highway maintenance, .....          | 1913    | 1,400,000 00             | 181,505 29     |
| State highway maintenance expenses, ..... | 1913    | 100,000 00               | 88,130 42      |
| State aid highway, .....                  | 1913    | 900,000 00               | 900,000 00     |
| State aid highway, .....                  | 1911    | 1,000,000 00             | 192,609 15     |
| State aid highway, .....                  | 1913    | 125,000 00               | 91,152 04      |
| Traveling expenses, .....                 | 1913    | 50,000 00                | 41,330 26      |
| Experiments and tests, .....              | 1913    | 75,000 00                | 59,578 67      |
| Contingent fund expenses, .....           | 1913    | 250,000 00               | 248,280 35     |
| Township road fund, .....                 | 1913    | 160,000 00               | 96,095 27      |
| Automobile expense fund, .....            | 1913    | 300,000 00               | 2,571 25       |
| Cumberland or National road, .....        | 1911    | 500,000 00               | 373,807 49     |
| State aid maintenance, .....              | 1913    |                          |                |
| Total amounts, .....                      | .....   | \$6,260,000 00           | \$2,638,915 47 |

I assure you of my high regard for the State Agricultural Board and that I will do anything I can to aid the Board in securing a true statement of any expenditure of the people's money by an department.

Yours very truly,

A. W. POWELL,  
Auditor General.

There being no further business, the Board, on motion, adjourned.

N. B. CRITCHFIELD,  
Secretary.



